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Years of Leadership and Service

Industrial FINISHING

DECEMBER, 1961

Finishing Business Machines

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Coatings of the Future . . . Today (II)
PAGE 34

Production Painting of New Packaging Machines
PAGE 44

Airless Spray Painting
PAGE 62

Finishing Croquet Sets
PAGE 70

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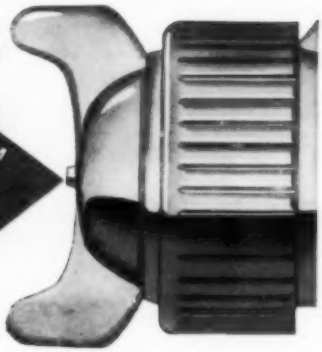

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A textured vinyl finish applied at low baking temperatures, ARMORETTE is used on a number of Beckman's computers and electronic test instruments. Another leading ARMORETTE application: garnish moldings of the Chrysler Imperial

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- A wide selection of gloss and colors, including both metallic and non-metallic.
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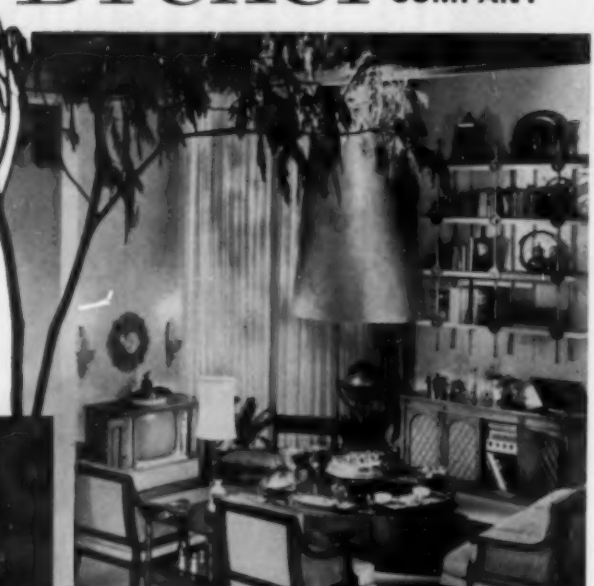

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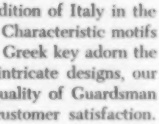

This display card is an important reminder to customers of the extra value to be found in Guardsman® Finishes. Available from the above manufacturer.

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A monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, painting and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

December, 1961 Vol. XXXVIII, No. 2

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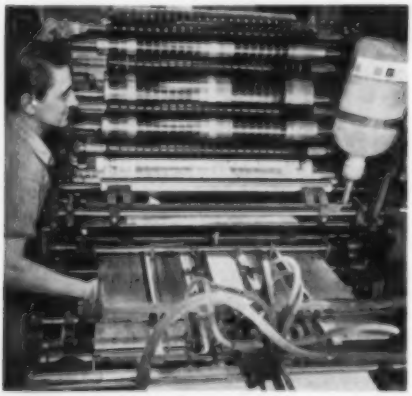
Random Comment

Economists Predict Good Year. The nation's leading economists expect 1962 will be a record-breaking year, in most respects, according to the 15th annual economists' opinion poll conducted by F. W. Dodge Corp.

The consensus of the 316 economists surveyed is that all major indicators of the economy will advance in 1962, many of them setting new records.

Gross National Product, the broadest measure of the nation's economic well being, is predicted to rise to $565 billion by the fourth quarter of 1962, an increase of 10% over the second quarter of 1961.

The economists also expect the Federal Reserve Index of Industrial Production to reach a record high of 122 by December 1962. The majority opinion is, the recovery will continue to be centered in the manufacturing sector of the economy, particularly in durable goods manufacturing.



Color uniformity is perfectly controlled.

* * *

Color Swatch Cards are being produced at printing press speeds on lithographic and letterpresses now in operation by Pantone, Inc., New York. These presses have specially designed split-fountain mechanisms which print up to 25 accurately matched colors in each impression with only ¼-in. separation. Colors set instantly and require no racking, slip-sheeting or special handling.

Color matching to original product and uniformity throughout the run are checked electronically. Swatches may be any size or shape, gloss or matte, and printed in a variety of formats.

* * *

Urethane Foam Protects. Protection first, then cost reduction—these basic aims in engineering shipping containers have been attained by Royal McBee Corp., through the use of poured-in-place urethane foam in a newly designed shipping carton for typewriters.

In assembly, the typewriter is placed in a 4-mil polyethylene bag. Die-cut sheets of corrugated cardboard are placed over each side of

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Aristocratic line of FINISHES to transform conventional surfaces into classical custom-built *decor* with beauty and depth of color which the highest quality Finish should possess.

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the typewriter and positioned 2-in. inside the ends of the carriage. When placed in the corrugated glue-flap box, inserts fit tightly against the inside of the box and the silhouette of typewriter, forming bulkheads.

A predetermined amount of urethane foam composition is poured into the end cavities. As the foam mixture expands, it fills the end cavities, forming solid blocks that adhere tightly to the carton walls and lock the typewriter into position. Approximately 6-oz. of foam, at a density of about 1-lb. per cubic foot, is used to fill each end. Semi-rigid, the foam has structural strength to protect the typewriter and sufficient resilience to cushion shocks in transit.

* * *

Improved Flakeboard. An improved filled flakeboard that can be finished super-smooth with all conventional coating materials including paint, enamel, lacquer, or clear finish is announced by Weyerhaeuser Company, Tacoma, Washington.

One coat coverage gives smooth finish.

Known as filled Timblend, the new flake-type particleboard features a new translucent filler material that also seals the surface for exceptional paint holdout and surface smoothness. For many end-uses, only one finish coat is needed. It is available filled one side or two sides, in thicknesses of ⅜ to 1⅛-in. and in sizes up to 54 x 192-in.

Gear Motors. New a.c. fractional horsepower gearmotors are shown in a bulletin offered by The Ohio Electric Mfg. Co., a subsidiary of Howell Electric Motors Co. These gearmotors provide the merits of compactness, safety, pleasing appearance and high efficiency for such slower-than-motor-speed drive applications as agitators, mixers, pumps, conveyors, fans and other machinery. The bulletin shows both in-line and right-angle gearmotor designs.

* * *

Patches Concrete Floors. Introduced by Stonhard Co., 401 N. Broad St., Philadelphia 8, Penna., Stonfil patching compound requires less than 30 minutes to patch ruts and holes in concrete, or to anchor bolts for machinery, light standards, ornamental iron work, hand rails, etc.

As a patching compound it permits emergency repairs to be made during lunch periods or between shifts; is twice as strong as concrete and can be used indoors or out, even at freezing temperatures. As an anchoring material, Stonfil holds with great strength and unequaled resistance to heavy vibration.

* * *

Protects Finish, Outside. "Gift Wrap" is the name of a new water resistant coating developed by Pittsburgh Plate Glass Co., to protect the finish on automobiles and other products temporarily stored out of doors —against dirt, sulfur stain, dew, sap from trees, etc. It is a non-flammable water-thinned coating. Thin films are easily removed with soap and water. For heavier films a special water-thinned alkaline remover does the job.

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INSEPARABLE.

United's Uni-Versal Coating bonds itself to ferrous and non-ferrous metals—solves your adhesion problems.

Coating anchors itself inseparably to your metal product—lets you do normal drawing, blanking, extruding without disturbing the finish. It's the perfect answer for "problem" products of aluminum, chrome, copper, iron, zinc, brass, galvaneel and galvanized metals, etc. Provides unusual resistance to salt spray, Whether you spray it or dip it, Uni-Versal humidity, abrasion, solvents, tarnish. Use as base coat or top coat. Air-dries in 15 minutes, ready to handle in 30. Can be force-dried or baked. Immediate shipment on Instrument Black and all colors. Write for free working sample and technical brochure. Free Technical Consultation Service also available on request.

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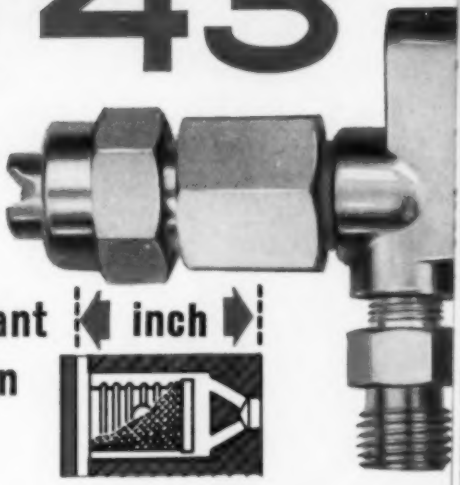
model 43



FEATURING

... the most important **inch**

of an airless spray gun

NEW removable metal screen cartridge keeps nozzles clear longer by trapping foreign particles before they reach and clog the nozzle.

NEW diffuser nut makes nozzle tip changing completely safe. The nut diverts the fluid on an angle to the side walls of a chamber taming velocity and impact of the fluid stream to a harmless level.

NEW positive trigger lock reduces operator fatigue by locking the trigger in place for continuous spraying; a squeeze on the trigger unlocks it.

PLUS all standard quality features users expect with Binks spray painting equipment. Put the Model 43 to work in your operation ... it can be used with any airless spray painting unit.

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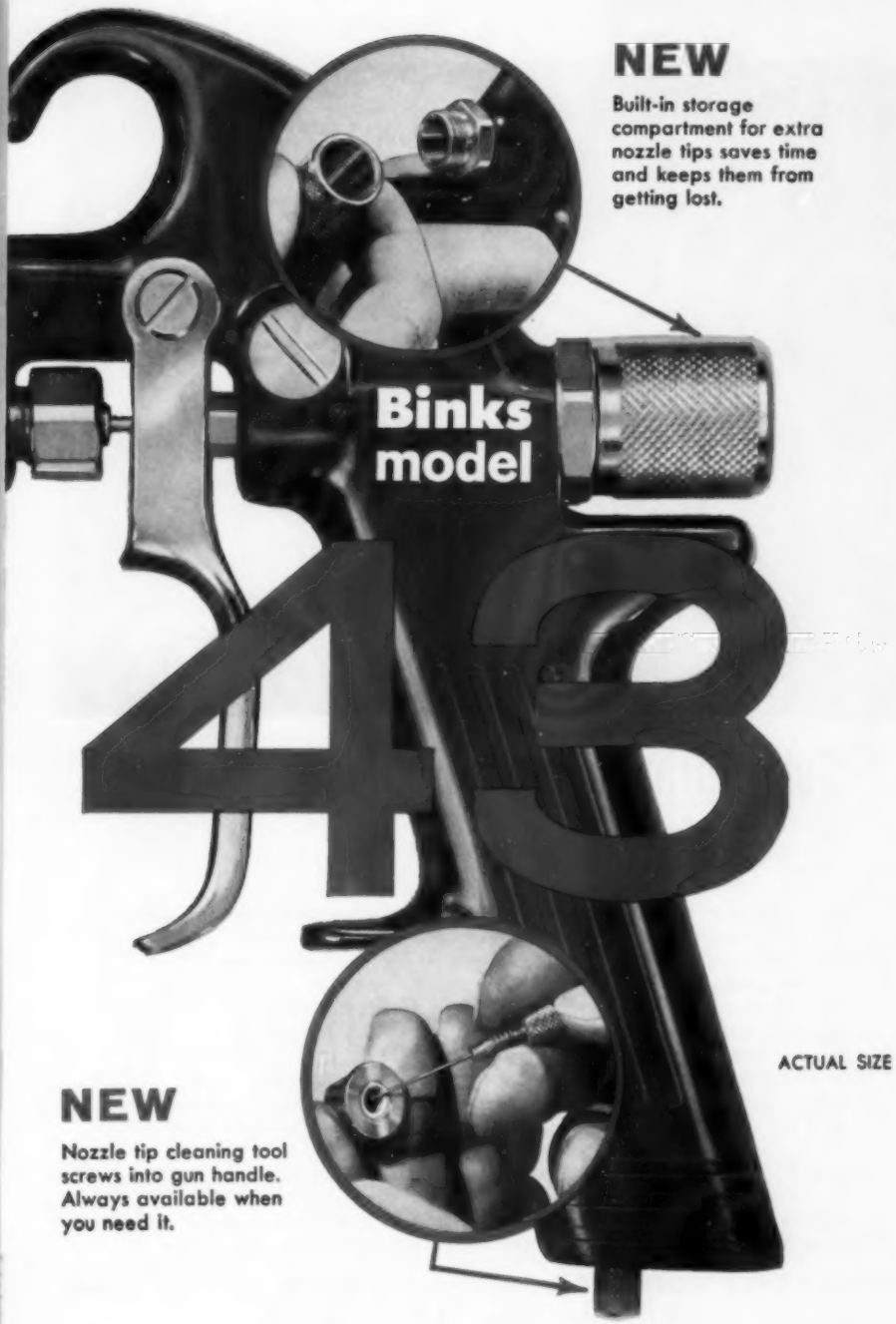
Binks Everything for spray painting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Built-in storage compartment for extra nozzle tips saves time and keeps them from getting lost.
Binks model
43
ACTUAL SIZE
NEW
Nozzle tip cleaning tool screws into gun handle. Always available when you need it.

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Self-spray paint troubles stop here

This is part of Sprayon's quality-control laboratory, where six full-time chemists and paint technicians make sure that your aerosol finishes—custom-loaded by Sprayon—never vary in color or performance. Before production begins, even on a routine re-order, prototype cans are made up in the laboratory and given an accelerated aging test equal to a year of shelf life. Test panels are then sprayed and the film is analyzed by precision instruments. Gloss and other characteristics are checked. Color is double-checked under a MacBeth light, the accepted standard of the paint industry. The spray pattern and the mechanical efficiency of the container are checked. All test data, materials and samples are dated, coded and filed for a year for later reference. Sprayon quality control is one reason why Sprayon has handled the greatest possible variety of contract-loading assignments for many of the nation's largest manufacturers—year after year after year. Get the full Sprayon story today.

SPRAYON PRODUCTS, INC. 2065 E. 65th St., Cleveland 3, Ohio

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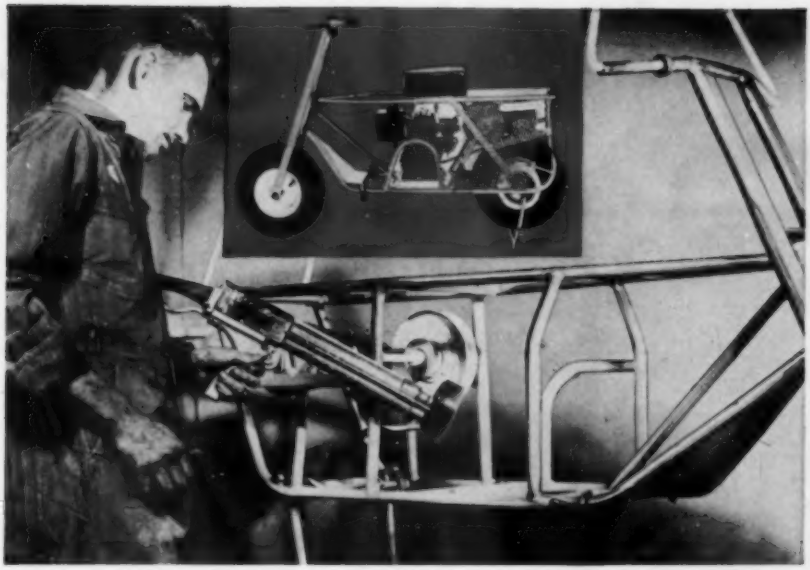

RANSBURG Hand Gun Cuts Paint Costs 35%—Painting Time 25% Over Former Flo-Coat in the Production of TOTE GOTE Cycles

Continually searching for better and faster manufacturing methods, the Bonham Corporation, Provo, Utah, switched from flo-coating to Ransburg Electrostatic hand spray to paint their Tote Gotes. The Tote Gote is an "off-highway" cycle, especially popular with hunters and fishermen who use it to travel over rough and rugged terrain not readily accessible by highways and roads.

Now, with electrostatic spray painting, Bonham is getting an improved uniform coating—a 35% savings in paint cost—painting time is cut 25%. And this over flo-coat!

RANSBURG

The predominately tubular construction of the Tote Gote makes it particularly adaptable for painting with the Ransburg No. 2 Process Hand Gun. That's because the "wrap-around" feature of electrostatic painting covers all such areas from one side only.

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See how the Ransburg Electrostatic Hand Gun can save time . . . paint . . . and cut costs in YOUR finishing department. Or, if your production justifies, it will pay you to investigate Ransburg's automatic electrostatic spray painting equipment. Send for our No. 2 Process brochure which cites numerous examples of modern production painting in both large and small plants.

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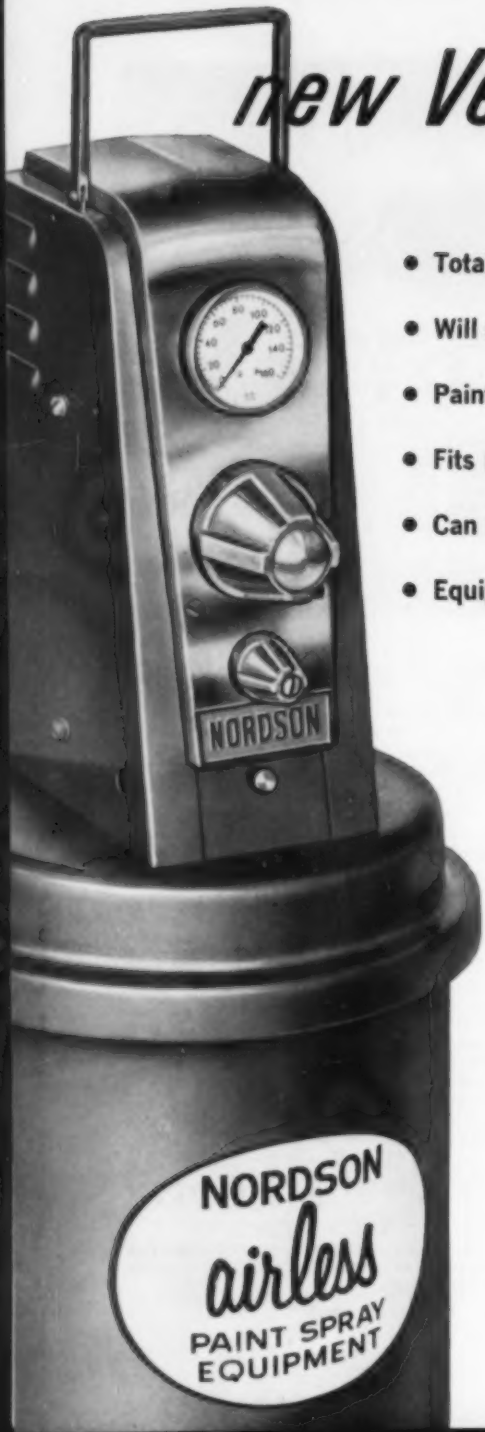
new Versa/Spray....



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- **Will spray up to 30 gallons per hour.**
- **Paint savings average 25 per cent or more!**
- **Fits right on five gallon paint buckets.**
- **Can be used with one quart paint can.**
- **Equipped with Nordson Versa Gun.**

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Widest range of Hot and Cold Airless units available anywhere. One to meet your exact needs.

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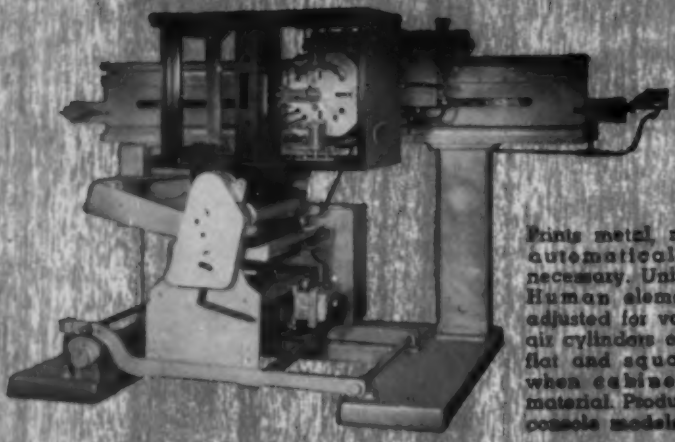

Prints metal, masonite or wood cabinet automatically. No jigs, no fixtures necessary. Uniform printing, no misprints. Human element eliminated. Quickly adjusted for various sizes. Cabinet held by air cylinders on inside, assuring a perfect flat and square printing surface even when cabinets are made of thinnest material. Production-2 per minute on large console models.

Wood

This machine is built in various sizes from the narrowest up to 38" wide, for the graining of various sizes and thicknesses of panels, tables and similar work. Can also be used for edge graining. Explosion-proof motor is mounted beneath a solid base, eliminating fire hazards.

This trademark SCHMUTZ recognized a builders of fine printing machinery sinc 1923.

This trademark is known not only in thi country, but throughout the world fo modern and highest quality printin machinery. Now manufacturing more tha 80 different types and models.

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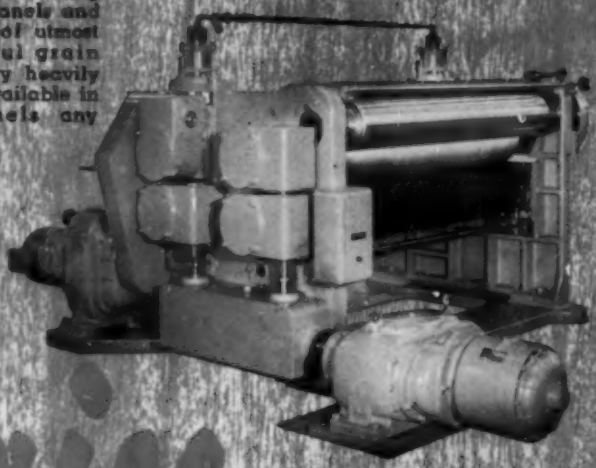
Reverse Roll Coater for eliminating imperfections in hardboard panels and other sheet material, which is of utmost importance in securing beautiful grain effects. These machines are very heavily and accurately built and are available in two sizes for 36" and 48" panels any length and up to 2" thick.



Grain

REPRODUCING EQUIPMENT

This large, heavy duty machine has been especially designed for printing unusually beautiful grain effects on large panels. Panels are automatically fed through the machine so that perfect registration of design can be had. Machine carries two sizes of engraved cylinders: 10" diameter for straight grain and 20" diameter where design of wood is such that repeating is objectionable. Standard size machines will handle panels 36", 48" and 84" wide, up to 12' long and from the thinnest to 2" thick.

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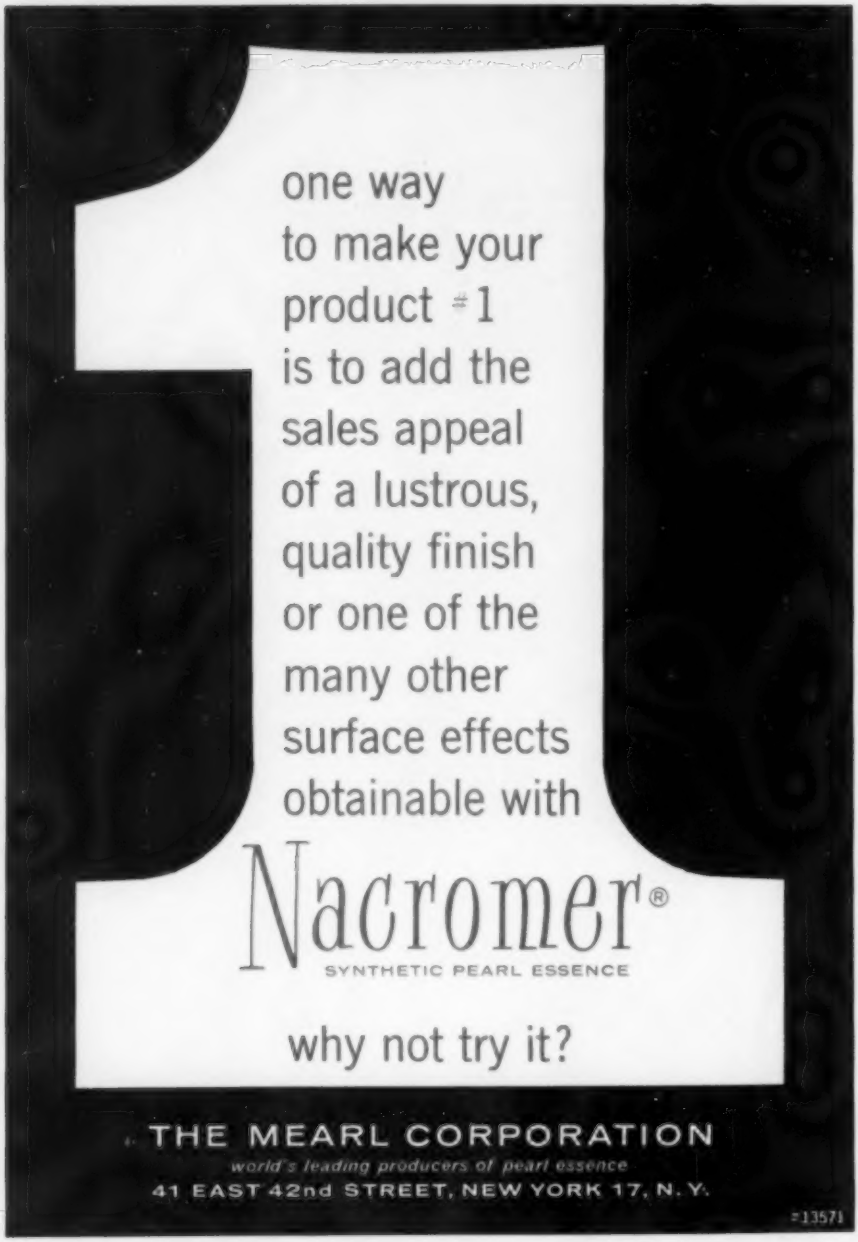

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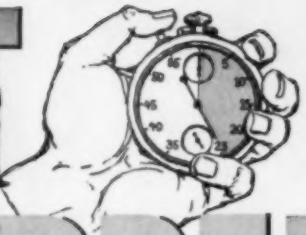
FAST STRIPPERS



✓ **FAST, CLEAN WORKING**...unlike caustics or strong acids, these strippers do not dissolve or decompose enamel or lacquer. These strippers break the bond between the metal and the organic coating. Loosened coating then slips off in sheets or shreds.

✓ **NON-CORRODING**...our strippers do not attack aluminum, zinc, ferrous metals or any other metal or alloy.

✓ **CONVENIENT**...stripped metal may be rinsed with water, dried and refinished immediately.

LEA COLDSTRIP

1. Requires no dilution. Use full strength.
2. No heating required. Use at room temperature.
3. Although toxicity is low, care should be taken to avoid contact with the skin.
4. Minimum ventilation required.
5. Can be strained for continued use.
6. Surface of Coldstrip is self-sealing (reduces evaporation).

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1. May or may not be diluted with water, depending upon the film adherence.

Maximum dilution should be 1 part Synstrip to 6 parts water.

2. Can be used cold or heated. Heating to temperature from 160° to 200°F. cuts stripping time.
3. Toxic. Avoid inhaling or contact with skin.
4. Heated solution requires ventilation to remove fumes.
5. Can be strained for continued use.
6. Evaporated water should be replaced to maintain concentration. Baumé readings on a hydrometer will determine the amount of water to add.

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Send for complete technical information on the fast working strippers.

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Industrial FINISHING

December, 1961, Issue

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Send your inquiries to

INDUSTRIAL FINISHING Magazine for information about technical paint coating problems, methods and processes; and for sources of supply for organic finishes, equipment and supplies to be used in connection with surface preparation and conditioning, paint application, sanding, paint drying, and baking, rubbing, polishing, etc.

Surfaces to be completely or partially coated for protection, decoration or for any other purpose, include components and articles made of metals, plastics, woods, and composition materials; also paper, leather, rubber and fabrics.

The services of many testing laboratories, finishing consultants and special technicians are often available.

The inquiries are promptly answered. As a result, new products, materials and sources of information are continually being uncovered; valuable contacts are made and timely suggestions for future articles to be published are often developed.

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Industrial Finishing Magazine

1142 N. Meridian Street

Indianapolis 4, Ind.

The SPEE-FLO Company

Announcing A Most Significant Patent Grant For The Finishing Industry!

What it Is

The H-Gun principle utilizes a small, specially designed pre-orifice in combination with the airless spray tip. Only Spee-Flo can offer this patented exclusive feature.

What it Does

The H-GUN produces a full feathered spray pattern with total atomization. It provides complete spray gun control eliminating flooding and "tails". This is essential for quality finishing.

What it Means to the User

The H-GUN produces quality airless finishing to the most exacting requirements. The H-Gun and the Spee-Flo HydraAirless will produce time and material savings averaging 30%. The H-GUN is used by leaders in the wood and metal products manufacturing, maintenance and construction industries. Write the Spee-Flo Company for documented reports of successful installations in your industry.

UNITED STATES PATENT NO. 3,000,576

has been issued on the H-GUN — the invention that produces quality Airless Finishing . . .

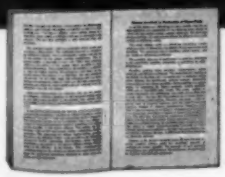
Patent No. 3,000,576

6614 Harrisburg Blvd. The SPEE-FLO Company THE H GUN Houston 11, Texas

For more data, circle 165 on colored card.

Compact Catalytic Combustion systems provide complete one-step fume elimination and valuable heat recovery for a wide range of chemical and industrial processes.

Learn the facts *about Heat Recovery and Air Correction . . . write "Department B" for our brochure.*



There's a lot of energy in noxious fumes!

Here are the facts: Heat recovery from low-temperature, flameless catalytic fume oxidation is a practical, proven method of utilizing energy that would otherwise be lost to the atmosphere. In addition, catalytic oxidation destroys fumes and odors, eliminates noxious air pollutants, aids production, builds employee morale, reduces wear and corrosion of plant equipment, reduces fire hazards and improves insurance position.

Catalytic Combustion pioneered the development and application of catalysts in fume and odor control systems. Today, more than 1,500 ovens in the wire enameling industry alone are proving the efficiency of Catalytic Combustion systems. In addition many paint baking, metal decorating, paper printing, organic coating and curing, and paper impregnating ovens and dryers are also profitably using catalytic oxidation systems.

Initial investment costs of catalyst elements on continuous ovens are often recovered through heat recovery in a matter of months. Elimination of equipment downtime, safer, more healthful working conditions and improved community relations in many cases also contribute to operating profits.

Catalytic Combustion elements are built to standard sizes and complete systems are custom engineered to maximum effectiveness.

CATALYTIC COMBUSTION CORPORATION

4725 Fourteenth Street • Detroit 8, Michigan

A SUBSIDIARY OF UNIVERSAL OIL PRODUCTS COMPANY

For more data, circle 166 on colored card.

Finishing BUSINESS MACHINES

By Robert Roach, Finishing Foreman,
Ozalid Division, General Aniline & Film Corp.*

A modern conveyorized setup wherein processing the formed metal parts includes cleaning, phosphatizing, drying off, spray painting and baking the vinyl prime and finish coats, with a minimum of manual handling.

ALL Ozalid machines for making duplicate prints on paper, copying and related uses, are produced by the Ozalid Division, General Aniline & Film Corp., Johnson City, N. Y., in a modern plant built especially for this purpose. These machines vary widely in size but all of them include housing and cover components made chiefly from cold-rolled sheet steel that must receive an enduring and attractive finish. Aluminum parts also are finished, with variations in the production procedure.

*Johnson City, N. Y.

The total number of components to be finished is considerable but batches generally are moderate to small, and the sizes and shapes of parts ready for finishing change constantly. Conveyor lines move the parts through the surface treating, painting and baking processes.

Cleaning and Phosphatizing in Preparation for Painting

An excellent system for cleaning and phosphating the parts is employed. The equipment is placed overhead, leaving floor areas below for temporary storage of batches and for loading the painting conveyor. A control panel at floor level enables the operator to regulate the processing. When the controls are set, operation proceeds automatically, except for the loading and unloading and for checking to make sure that solutions are held to specifications and that everything is functioning as required.

All parts for passage through tanks are loaded into large stain-

less steel wire baskets by hand. Baskets then are hoisted automatically and pass through an automatic surface treating cycle without attention. Time of the cycle can be set for anywhere from one to 15 minutes but usually an 8-minute timing is best suited for the average load. Normally (always for steel parts) there is a dipping into each tank in the circuit, but for aluminum parts the first four tanks are skipped.

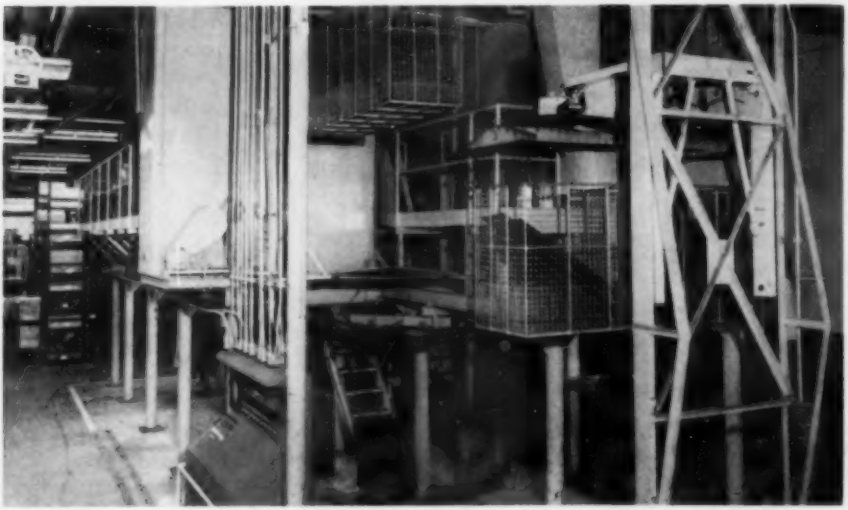
The immersion time is the same in each tank but baskets are reciprocated automatically up and down in a 6-in. stroke after full immersion. This agitation keeps the solutions moving over the surfaces of all parts treated. Upon being lifted from each tank, the basket is held briefly for solutions to drip off; then the loaded basket is advanced by the conveyor and lowered into the next tank.

Automatic Dipping in Solutions And Rinses; Dry-Off in Oven

In the first tank there is a heavy-duty alkaline cleaner solution heated to 190° F. This is followed by a cold water rinse in the second tank. Next comes treatment by a dilute phosphoric acid solution held at 130° F. Then follows another cold water rinse. Phosphating is continued at 130° F. in the fifth tank, and a third cold water rinse follows in tank No. 6. In the final tank a dilute chromic acid solution produces a sealing action.

Each loaded basket then passes

General view of the cleaning and phosphating system, with tanks on a low balcony above the chain conveyor that advances parts through the finishing system. Two baskets shown at the right are loaded before hoisting. Those at the higher level, have passed through a drier and are now ready to be lowered and unloaded. Control buttons are on panel at lower left.



through a dry-off oven in which circulated air is heated to 350° F. Cooling occurs in the final station of the elevated system, after which baskets are advanced, lowered and unloaded by hand. Empty baskets are ready for reloading with parts spotted on pallets or in boxes in an adjacent area. Parts removed from the baskets are hung on an overhead chain conveyor which carries them to and through spray booths —or some parts may be stacked temporarily.

Steel parts passing through the system just described receive a deposit of 75 to 80 milligrams of iron phosphate per square foot. The surface is etched, rendered corrosion resistant and it is of such a nature as to insure excellent adhesion of the paint coating. Aluminum parts bypass the first four tanks; they do not enter the alkaline cleaner or first phosphating tank or two rinse tanks, but pass through the remainder of the system and emerge ready for painting. Swivel hooks on the conveyor chain are spaced on 2-ft. centers.

All solutions in tanks are checked daily for correct solution strength. About once every three months the contents are dumped, cleaned and recharged with new solutions. Rinse tanks receive fresh water continuously so as to overflow, therefore the rinse water is always kept clean. Each tank is of 1250-gallon capacity and each one is deep enough to permit loaded baskets to be completely submerged.

Vinyl Prime and Finish Coatings Are Now Used

Formerly a fairly conventional wrinkle finish was applied to the parts processed but the texture of this finish was somewhat critical, and it was hard to control. As a

Water-curtained spray booths in which vinyl primer and finish coats are sprayed on parts moving along by a conveyor which continues through the baking oven (on roof), returns to the unloading area and is again loaded with other parts ready for spraying.

For more data, circle 167 on colored card. ——————→

"...easy Joe, that baby's worth a quarter million!"

NEW DESPATCH OVEN DRIES TRANSFORMERS SAFELY, ECONOMICALLY

When products are worth $250,000 apiece, processing mistakes can be costly.

That's why Wagner Electric Co., St. Louis, called on Despatch for a moisture removal oven.

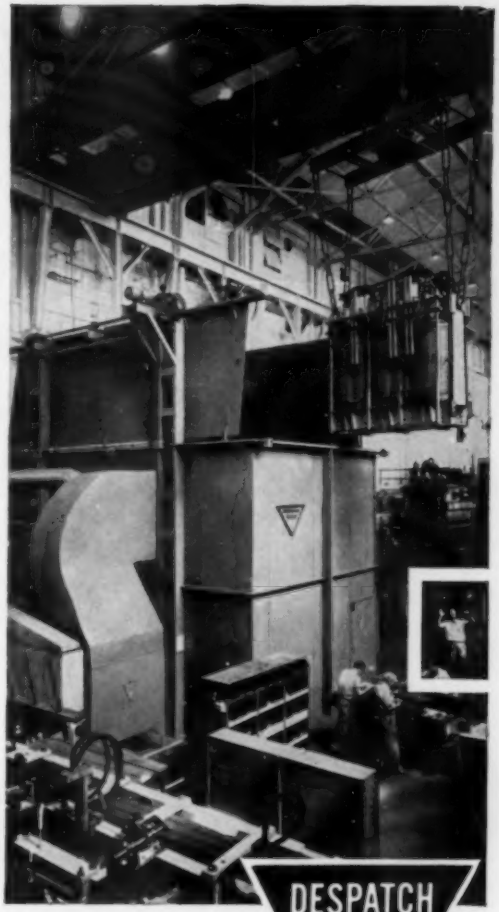
This new Despatch oven performs exactly according to specification. It also increases productive capacity and makes operations more versatile.

Drying Wagner's giant transformers—which range up to 100,000 kva—is a vital and critical step. Moisture must be removed, but heat must not damage insulation.

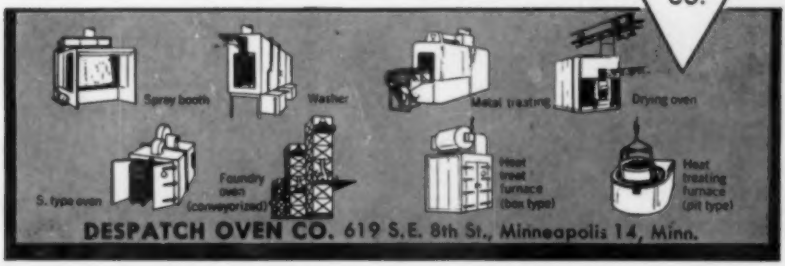
"We considered many other types," reports company official Charles Ruder, "but Despatch proved to be up to twice as economical."

Perhaps your firm has a similar problem. Our engineers will be pleased to discuss it with you . . . or any other in industrial heating, metal washing, spraying, etc. There's no obligation.

Write today for free bulletin 100-AC.



DESPATCH OVEN CO.



DESPATCH—INDUSTRY LEADERS FOR 58 YEARS

result rejects ran high and finishing costs seemed to be out of line. Recently a shift to vinyl prime and finish coats was made. The result is an enduring finish of fine appearance and fewer rejects. The spacing between pieces on the conveyor has been reduced 50%, but the chain speed remains the same as before, namely 8-ft. per minute.

Two booths are used for priming —one for each side of each piece —and two for finishing coats most of which are needed on one side only. No baking is done until all coats are applied but some flash-off (air drying) time is allowed between successive coats. All spraying is done with compressed air and all guns are held and directed manually. Each finishing booth has five guns, one for each of the five colors used.

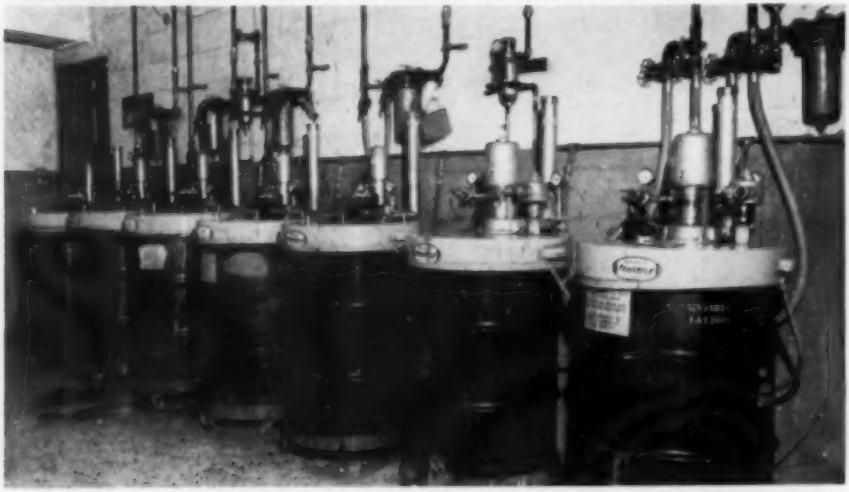
The single priming coat is put on quite thin—about ½-mil. The two finish coats applied are thicker; they bring the total finish thickness up to about 4-mils. All parts carry identifying cards that indicate whether one or both sides require a finishing coat.

Material Supplied From Tanks; Viscosity Checking; Baking

Each spray gun is supplied from a continuous circulating system which is connected to one of two supply tanks used alternately, so that there is no delay or shut down when one of the tanks needs refilling. A power agitator in each tank keeps its contents well stirred and mixed. Each supply tank has a power pump that forces the material to circulate through piping to the spray booth. Guns not in use have their spray heads set in recesses where solvent keeps the fluid and air passages clean.

Viscosity of the paints is checked

A view in the paint mixing room showing seven of the supply tanks from which vinyl primer and finishing coats in several colors are pumped through piping to spray booths and return.



ENAMELS FOR ELECTROSTATIC SPRAY

CENTRIFUGAL OR AIR ATOMIZED

Versatile, completely practical . . . POLYSTAT comes in lacquers, baking enamels and in epoxies and thermoset acrylics. And in the finish you desire . . . hammer, textured, metallic and smooth. POLYSTAT is made to serve your particular use.

SEA-LAC **DURALAC CHEMICAL CORP.**

84 LISTER AVENUE, NEWARK 5, N. J.

For more data, circle 168 on colored card.

twice daily and is held (by addition of reducer when and if required) at 10 seconds for the primer and at 25 seconds for finish coatings. Both viscosity checks are made with a No. 3 Zahn cup. All finish materials are supplied in 55-gallon drums. The materials are given proper agitation before the contents are transferred to a circulating tank.

Parts that leave the final spray booth undergo a 12-minute air drying as they travel by conveyor to the baking oven on the roof of the building. Total time in the oven is 21 minutes. During the first nine minutes, the heat increases slowly to 350° F. and remains at this level until the parts leave the oven to enter a cooling tunnel. Parts leave the cooling tunnel in an area next to a stockroom and are either stored there or are transferred directly to assembly lines.

Controls; Cooling; Inspection; Few Handlings; Few Rejects

All controls and temperature indicators for the oven interior are located outside the wall of the spray area and not far from the point where finished parts leave the cooling tunnel. There, checks are made by the inspector who unloads finished parts from the line.

It is quite an advantage to have a finishing system wherein all coatings are cured in a single baking in one oven, and to use a single 800-ft. chain conveyor to move the parts from the time they are loaded on chain hooks, after the cleaning and phosphating process, until they are unloaded ready for assembly. This minimizes manual handling and helps to avoid any marring or damage such as might be caused by extra handling.

The finish is of higher quality and better in appearance than that formerly applied. There is the important added benefit that rejects are nearly eliminated, thus substantially avoiding the extra expense of refinishing salvaged parts.

Considered as a whole, both the setup employed and the results obtained come close to being ideal for the particular conditions to be met. They are especially advantageous for a type of production that involves parts of widely varying size, produced in relatively small batches.

Northwest Adds New Chemicals

Northwest Chemical Co. has concluded an agreement to distribute, in Midwestern states, the chemical specialties produced by Conversion Chemicals Corp.

Northwest Chemical, a Detroit unit of the Chemical Products division of Chemetron Corp., is a manufacturer of chemicals widely used in the metal-working industry, including cleaning and phosphatizing chemicals. Conversion Chemicals, Rockville, Conn., produces the "Kenvert" line of chromates, brighteners, bright dips and protective dips.

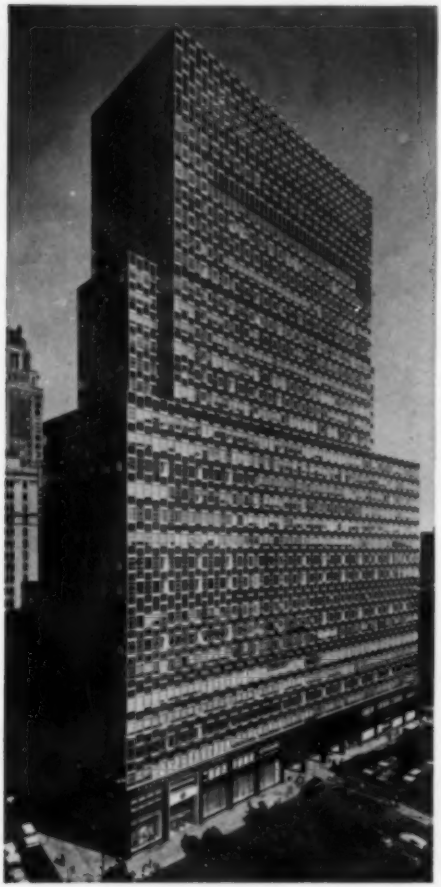
Bradley & Vrooman Adds New Representative

Walter L. Churchill has joined the Bradley & Vrooman Co., Chicago, as technical service and sales representative.

Mr. Churchill's territory will encompass Wisconsin, Minnesota and Iowa. He will call on users of industrial packaging materials, chemical coatings and fluid plastics, the company's principal products.

He will headquarter at 205 Rivoli Bldg., LaCrosse, Wisconsin and will reside in that city. Previously, he lived in Oak Park, Illinois.

Cosden Clear Acrylic Keeps Lupton Aluminum Windows Bright & Stain-Free



Lupton aluminum windows are chosen for many major buildings from schools to skyscrapers because of their beauty and durability. To protect these handsome windows from abrasion and staining by mortar, plaster or concrete etching acid, their maker, Michael Flynn Manufacturing Company dip-coats them in a Cosden clear acrylic lacquer. The result is a hard, clear coating with excellent adhesion and outdoor durability. The lacquer is formulated specifically for the dip-coating process to assure a drip-free uniform coating.

Where required, Cosden acrylics —either clear or pigmented—can be adapted with equal success to other application methods.

Are they the answer to your finishing problem? Send us the details and we will give you a prompt, honest answer.

PHOTO BY WURTS BROTHERS

COSDEN PAINT COMPANY

BEVERLY NEW JERSEY

For more data, circle 169 on colored card.

Coatings of the Future... TODAY

BY
WILLIAM R. BROOKS

Part II; Polyester Resins

BY DEFINITION, a "polyester" is a resin composed of polymeric esters in which the recurring ester groups are an integral part of the main polymer chain. Unsaturated polyesters contain double bonds which permit cross-linking and hence conversion of the resin to a substantially infusible, insoluble product. (Modern Plastics Encyclopedia, 1962)

The bulk of the resin used today is of the unsaturated type and is used primarily in the reinforced plastics industry to fabricate such products as panels, boats, aircraft components, chairs, luggage, storage tanks, etc.

Synthetic Resin Coating System; Structural Reinforced Resins

To relate a polyester resin to an enamel or to the synthetic resin coating system brings up one major difference. The manufacturer using the enamel is coating or finishing his wood or metal product with a coating resin for the protection and beauty it imparts, whereas a manufacturer using polyester resin is usually manufacturing his complete product from the resin and possibly reinforcing the resin with some fiber or filler such as fiberglas to give strength. The end product in this case has the finish or protection usually imparted by a conventional coating material built right in. It could be likened to the manufacture of a steel product by blending the paint into the steel before fabrication.

Because of this unique method of using polyester resins, little usage is found where the resin is

Epoxy Resins were discussed by the author in an article in October 1961 issue, pages 62-68. Urethanes will be taken up in a future article by Mr. Brooks.

PROVEN IN MANY DIFFERENT FIELDS

for *High Production, Quality,* and *Simplicity of Operation*

How the NEW *GASWAY*

Kinetic-Kurtain Coater

helps you improve finish, save material and increase production

A new precisely metered gravity curtain of material! That's what gives you an ultra smooth coating film deposit at high speeds. Ends material loss . . . produces faster . . . smoother film . . . fast color changes . . . previous settings exactly duplicated . . . only two easy adjustments . . . many standard paints and finishes can be applied. Here is the finishing man's dream — fast, efficient, economical coating. Find out about this dramatic new machine today.

- **Coats all materials**
- **Speeds from 50 to 450 FPM**
- **Applies many different finishes**
- **Explosion-proof design**
- **Coats up to 65" widths**

25 Years' Experience In The Finishing Field

CHECK THESE FEATURES:

- ☐ Uniform film thickness control
- ☐ Smoother films even with fast solvents
- ☐ No flow-mark problems
- ☐ High speed roller coating economy

GASWAY CORPORATION

6463 N. RAVENSWOOD AVE.
CHICAGO 26, ILLINOIS
SHELDRAKE 3-1414

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used only as a coating to protect or beautify some other surface. Two areas where this is done today are the wood finishing industry and the maintenance and decorating industry.

Are Beginning to Find Acceptance in Wood Finishing

In the wood finishing industry the use of polyesters, to supplant lacquers as the coating film, is just beginning to find acceptance in this country. One of the main reasons why manufacturers in the United States have been slow in accepting polyesters as a wood finish is due to our different production requirements and the performance being achieved by the conventional systems in use today. In addition, a polyester wood finishing system requires compatible stains, sealers, fillers and toners, to be effective. Another drawback is the inherent high gloss characteristics of the resin, which is not acceptable by Mrs. Housewife. All the modern wood finishes today are open grain satin finishes.

With the advent of new formulations, I believe we will see the beginning of a major use of polyesters in prefinished paneling.

Also in the Maintenance And Decorating Fields

The second area, as mentioned above, where polyesters are making some inroads as a coating material is in the maintenance and decorating industry. The basic reason that this coating has not become as widespread in use, as it could, has been the lack of knowledge of the use of the resin by the applicator, and also the lack of knowledge on the part of the architect who could and should welcome it over masonry construction to replace the standard paint or, in many cases, plastic or ceramic tile.

What do polyesters offer to a potential user that make them desirable?

1) 100% reactive, which means there are no solvents to worry about.

2) Thermo setting, which means they have their own built-in cure.

3) High build, which means that almost any thickness desired can be obtained.

4) Good cold-check resistance.

5) Good color retention.

6) Good abrasion characteristics and heat resistance.

Catalyzed Resins; Curing; Chemical Accelerator or Heat

Polyester resins fall into the general category of 2-component resins or catalyzed resins. The cure of a polyester is done with the addition of an organic peroxide or hydroperoxide catalyst. The length of time it takes to cure the resin is based on the percentage of catalyst, and the temperature. Some users will premix the catalyst in a low enough weight percentage so as to have a long pot life (4 to 6 days) at room temperature.

The ultimate activation of the catalyst takes place when heat is applied. This can be done by putting the finished product in an oven or by the use of a chemical accelerator or activator such as cobalt naphthenate or a dialkyl aromatic amine. The use of an accelerator eliminates the need for an oven or

YOU PROFIT FROM OUR WEALTH

. . . of know-how in GAS and ELECTRIC infra red oven design

You get the cost-cutting advantages of area-source, uniform heating . . . the savings of low maintenance, long-life heaters, with no bulbs or tubes to burn out or break . . . and the built-in adaptability to any system or conveyor with Infra-Red Systems modular ovens. Controls available from simple "ON-OFF", through zone control, to complete automation. Profit from this know-how applied to **your** finishing operation.

Write or phone today.

IRS Electric Infra Red Oven for small metal parts

FREE! The Story of MODULAR INFRA RED OVENS

. . . write for your copy.

INFRA-RED SYSTEMS INC. 240 ROUTE 23 RIVERDALE, N. J.

For more data, circle 171 on colored card.

mechanical curing system, and offers complete control in the curing cycle by varying the amount used.

Polyester Materials as a Protective Coating for Metal

The use of polyester as a protective coating for metal has taken on new stature with improved formulations now available. One factor is the use of isophthalic polyesters which have a higher molecular weight and, therefore, give higher strength and chemical resistance characteristics. Another is bisphenol A polyesters which are more resistant to hot aqueous solutions of chemicals. And, of course, the development of true air curing polyester resins, eliminating the necessity of various additives such as a wax to exude to the surface and keep air from inhibiting the coating.

For a manufacturer to consider using a polyester resin system he must examine all aspects to engineer the system to his requirements. He first must find the particular resin system that will give the surface his product requires. If catalyst type equipment is necessary to apply these resins, his applicator must be trained in the use and maintenance of this equipment. Even though present day equipment is much simpler than it used to be, it is still different from ordinary equipment, and thorough training is required for its use.

As a low-cost, 2-component, 100% solids coating material, it should have tremendous potential in the coating field, and it would be wise for any manufacturer who wishes to upgrade the protective finish of his product to investigate polyesters further.

Binks Appoints J. J. Cody Jobber Sales Manager

Binks Mfg. Co., Chicago, announces the appointment of J. J. Cody to the newly-created office of Jobber Sales Manager.

Cody is well qualified. He has been with Binks more than ten years, with much of this experience in the jobber field. As a field representative, Mr. Cody worked closely with jobbers in the Chicago territory. Later, as Product Manager of the Air Compressor Division, he dealt extensively with the national jobber network.

The principal duties of the Jobber Sales Manager will be development of the jobber organization, upgrading and development of existing product lines from the standpoint of making them more salable, development of point-of-sale merchandising aids, introduction of new jobber literature, and introduction of new jobber products based on field experience.

Parker Rust Proof Co.; Randall

The Fred M. Randall Co., Detroit. Mich., advertising, merchandising and public relations firm, has been appointed to conduct a public relations program for the Parker Rust Proof Co., according to Frank Hendricks, Parker sales promotion manager.

The program's aim is to develop and furnish the metals forming and finishing industries with factual information on Parker's products, their applications and the research required in the development of these products, said Hendricks.

The Parker Co. produces a line of metal surface treatments for industries engaged in the forming and finishing of metals for industrial, commercial and consumer uses.

Guinea pigs
are important

. . . but who wants to be one!

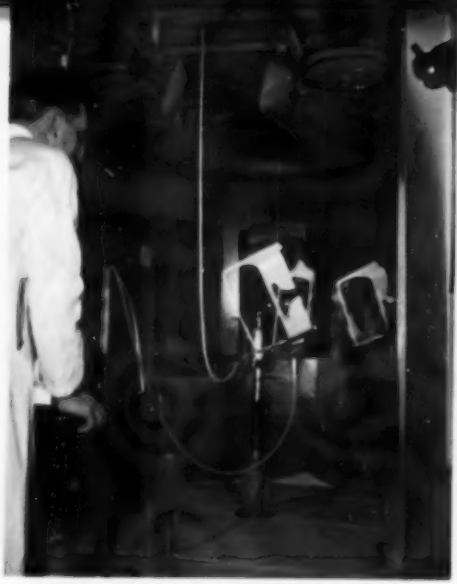
A double roll coater applies a smooth, even finish on a hardboard panel.

An airless spray is used to apply Copon® multicolor glaze finish to a masked concrete block.

The Reliance Varnish Company makes sure its customers aren't guinea pigs. Before Reliance turns over a new coating to a customer, the coating is tested completely. Reliance will set up a "pilot plant" to see how a coating performs under actual production conditions. This saves customers costly production bottlenecks, interrupted schedules and needless equipment investment. Reliance's production testing program is only part of their planned customer service program which includes basic research and custom formulations.

A wood grain printer applies cherry ink over a light base coat on a furniture drawer sample.

Look at the pictures on these pages. They give you an idea of how well equipped Reliance is, and the many types of coatings they make. Every Reliance coating is made with top-quality chemicals—like USS Toluene. This high quality nitration grade Toluene is uniform in every batch.



Electrostatic sprayed test samples for typewriter housings go through a pilot line.

A precision coater prints an accurately-controlled film onto a kitchen cabinet door part.

Catalytic spray equipment applies a tough, epoxy finish to a steel test panel.

A hand printer is used to make low-cost decorative patterns and color variation samples for evaluation.

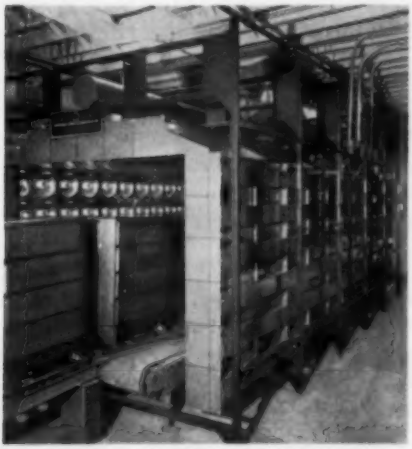
Toluene

Nitration grade toluene from United States Steel is a dependable material that helps The Reliance Varnish Company produce quality coatings. USS Toluene can assure quality in your product, too.

Finish on Furniture Dries in Zoned Infrared Oven

WENCO Furniture, Inc., of Wendell, N. C., recently completed the installation of a ceramic type electric infrared radiant oven which has been designed to handle the drying of furniture case goods.

The conveyor and oven portion of the new finishing line are unique in that all case goods travel along the conveyor without using pallets. Instead, each case is mounted on skids as a base for level movement on the conveyor.



Chests of drawers moving by conveyor through a zoned infrared heat oven. Photo courtesy of Dry Clime Lamp Corporation.

A. S. Johnston, Manager of Wenco Furniture, Inc., did much of the layout work before installation. He worked in conjunction with the sales representatives for infrared ovens and automation conveyors.

In this relatively small but efficient finishing room it would be almost impossible to install a closed loop finishing conveyor, without making extensive and costly additions to the building facilities, according to Mr. Johnston. With this new layout, no pallet return system is necessary.

Finishes now being applied consist of two stain coats, one sealer coat and one catalyzed varnish top coat. The final catalyzed varnish top coat is all that is being handled by the infrared radiant oven. After the final varnish coat has been applied, the cases are conveyed through an 8-minute flash-off oven, after which they pass through a 3-minute baking area in the oven. Upon leaving the radiant oven, high velocity air cools the cases to room temperature; this requires only about one minute, after which each case is cartoned immediately for shipment.

The infrared radiant oven is 17½-ft. long, 7-feet high and 8-feet wide. The oven has six controlled temperature zones which provide even drying and baking to all portions of each individual case.

The oven and conveyor are designed to handle the cases either in close pack or positioned on the conveyor at a 45° angle, as might be desired. However, the initial production through this oven has proved that the cases may pass through the oven close-packed, still providing satisfactory baking of all parts of each individual case. Temperature can be set accurately at any level in each of the heat zones independently.

One of the economical features of this particular type of oven installation is that the exhaust air taken out of the radiant oven is then forced through a warm air, enclosed flash-off tunnel and later exhausted from the entrance end of the flash-off tunnel to the outside of the plant.

Our greatness is not technology alone. Much of our greatness is in our ability to cooperate and work together—and produce results.

Production Painting of New PACKAGING MACHINES

By J. T. Forgeng, Mfg. Engineer
Food Machinery and Chemical Corp.
FMC Packaging Machinery Division
Stokes & Smith Plant*

PAPER BOX machines have been in use for many years. The first practical machine for wrapping a paper box with a single sheet of paper was developed by Stokes & Smith over 50 years ago. This was the setup paper box, one of the earliest forms of packaging.

As merchandising methods moved away from the traditional cracker barrel of the country store toward convenience packaging suitable to the self service super market, other types of packages were popularized. Pouches, tubes, cartons, bags, cans, aerosols, etc., gained acceptance. Everything from nutmeg and celery seed to face powder and

*4900 Summerdale Ave., Philadelphia 24, Pennsylvania.

Hot airless spray equipment is portable so that coating of parts need not be confined to the spray booth. With little or no overspray, all painting may be done in the open shop.

Here a workman is spraying a hammer-effect finish to coat surfaces of package machinery castings, using hot airless spray. Note the absence of overspray. Photo, courtesy of Spee-Flo Co.

putty needed a distinctive package. Stokes & Smith develops and manufactures much of the machinery to do these jobs.

Such intricate, specialty machines are not mass produced like automobiles, refrigerators, washers, etc., hence the finishing procedure is somewhat different from that of an automobile body shop or an appliance plant. The machines are made of both castings and cold-rolled steel parts, some of which are interchangeable, but most parts can be used only on specific machines.

Castings Are Shot Blasted, Primed and Putty Glazed

All castings that come from the foundry are chipped off and cleaned up; gates, snags and rough edges are ground before they are shot blasted. The cleaned castings are given a coat of alkyd-resin-base, zinc-chromate corrosion-resistant primer.

The primer is applied by hot airless spray. It is sprayed at a viscosity of 40 seconds, at 77° F., as measured in a No. 2 Zahn cup. The material is pumped directly from the container into the airless spray system where it is heated to 140° F.; it is atomized under 750-lbs. pressure.

After an air-drying period of 30 minutes a lacquer-base glazing putty is applied to all rough areas of the casting; for this operation the workman uses a knife on flat surfaces and a leather squeegee on

rounded surfaces. The putty glaze is allowed to air dry for a minimum of 30 minutes before the filled areas are sanded with No. 80 grit sandpaper. Then the surfaces are blown clean with a compressed air gun and tack ragged.

Hammer Finish Is Applied By Hot Airless Spray

The clean prime coated castings are given a coat of 30%-solids, air-drying, synthetic lacquer enamel hammer-finish in turquoise color. This material is also applied by hot airless spray painting at a viscosity of 38 seconds at 77° F., as measured in a No. 2 Zahn cup. The paint heater in the airless spray system is maintained at a temperature of 120° F.; a pressure of 900-lbs. is used to atomize the material. By this system we obtain a dry film thickness of four mils.

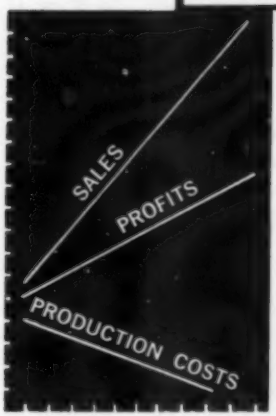
Sheet Metal Parts Receive Identical Finish

Sheet metal parts, such as formed doors, covers, shields, etc., which comprise only about 15% of the parts that go into the packaging machines, are manually cleaned with solvent. Then they are hung on the overhead monorail conveyor to be primed and finish coated. Exactly the same materials and equipment are used for finishing the cold-rolled steel parts, with the exception of the putty glaze operation. We obtain the same dry film thickness on these pressed sheet metal parts. The finish coat dries to touch in about 15 minutes, and is generally allowed to air dry from 12 to 16 hours before the machines are assembled.

Food packaging machinery, as painted in this plant, has a nice smooth, sanitary finish.

We feel that selection of the turquoise hammer finish was wise as it gives a uniformly attractive appearance to the packaging machines, and it removes the need of over emphasis on preliminary surface smoothing, thus reducing costs. So far we have experienced no difficulty in matching the cast-

progressive companies use *Randolph* performance-proved hi-quality finishes



Many firms are finding a definite relationship between increasing sales and the use of Randolph coatings. Alert to the products that make greater profits and lower production costs possible, keen-minded industrial management buys Randolph for powerful reasons. Sales-stimulating eye appeal. Practically indestructible wear that keeps a product looking young.

Randolph's reputation is built on experience, research, service. Consult our technical staff if you have any finishing problem. Without any obligation to you.

Randolph PRODUCTS CO.

LACQUERS • ENAMELS • DOPES • THINNERS
CARLSTADT, N. J.

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ings and formed sheet metal parts in either color or texture, although they are finished separately and at different times.

Why We Use Hot Airless Spray Application

As I mentioned before, our finishing procedure differs somewhat from that used in the automobile and appliance fields. We do not have a high speed production finishing line, but rather one that is operated on an intermittent basis.

Both castings and formed sheet metal parts are coated on the inside as well as on the outside. On many of the parts, especially on the inside surfaces, a bounce-back of sprayed paint would result if we used compressed air to atomize and spray the paint. Finally, our finish specifications demand a dry film thickness of four mils, and we are eager to accomplish all of this in the most economical manner.

Hot airless paint application seems to be the answer. Because our finishing is sure to be intermittent we selected the recirculating type of airless spray equipment. This gives a uniform preselected temperature of the material regardless of intermittent operation.

Both the primer and finish coat materials are pumped directly from the container by a 20 to 1 ratio pump. The system has a filter for the materials and a surge chamber to insure constant pigment suspension and uniform application. With hot airless spray equipment we are able to operate intermittently and at the same time maintain a preestablished paint temperature that automatically controls the viscosity of the coating materials during both summer and winter, regardless of the shop temperature.

Considerable savings are effected through a reduction of the viscosity of our coating materials by heat rather than by the addition of solvents. As a result of a reduction in overspray or bounce-back of the coating material, we waste less paint and we have better working conditions for the spray painters. Finally, we are able to obtain a dry film thickness of 4-mils with two coats by depositing more solids per coat by hot application. We question whether we could do this if we sprayed our materials at room temperature.

Aro Corp. Appoints General And Export Managers

The Aro Corp., Bryan, Ohio, announces the appointment of H. S. Ormsbee to the post of General Manager of International Operations. A. W. Moran has been named Export Sales Manager. Both men have beeen transferred from Utica, N. Y. to Aro's home office in Bryan, Ohio.

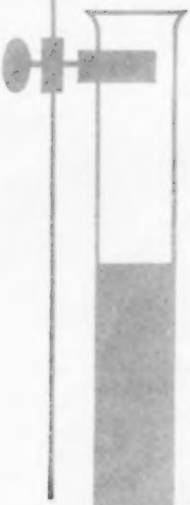
Mr. Ormsbee has been associated with the company since 1946, when he joined the former Aro export office in Utica, headed by Peter Karl. He is now responsible for all overseas sales of Aro automotive, industrial and aeronautical products, and will handle licensing and manufacturing arrangements. He recently returned from Switzerland, where he helped to launch Aro's new export subsidiary.

Mr. Moran has been with Aro for 11 years in the Utica office. His newly assigned duties will take him on periodic trips throughout Latin America.

RESEARCH FINISHES

DEVELOPED FOR YOUR SPECIFIC NEEDS

Need a special finish to solve a particular problem? Call on Gilbert Spruance! We don't just make finishes . . . we create them. That's why—if it's not already in our extensive line—we can develop precisely the finish your product requires. As for our regular in-stock finishes, here's just a sampling:



SCANLAC if your wood product takes a beating, it won't show the scars with Scanlac! Spruance's water white, clear high solids lacquer is tougher, more resistant, and has been proved superior to conventional wood finishes by actual use. It resists scratches, discoloration, and staining from many chemicals, detergents, alcohol, etc. . . .

SUNSTOP the colorless lacquer that stays colorless. For wood or metal, and the perfect protection for white furniture. Resists fading, yellowing, staining and discoloration.

VARPLEZ LOW-BAKING VARNISH developed for furniture that requires superior resistance to alcohol, nail polish, cigarette burns; and increased build of finish and color retention.

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If you are located on the eastern seaboard, call or write for full details to:

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Stop That Uncleanliness, Disorder, Wastefulness

I CAN'T resist the urge to tell you about some finishing departments that I have visited I walked into one such place and looked around in bewilderment, wondering whether I was in the wrong area or if this was really the paint shop. Disorder and sloppy housekeeping reigned supreme. I can't help but wonder what type of finished products are produced in such complete disarrangement of everything. My first reaction to this type of housekeeping was that I wished I could do something about the situation; and there was certainly much to be done.

I don't know why, but in this type of shop, it seems that the personnel always choose to place the rejects in bins or boxes and park them in a corner in the paint room. Before long the corners are filled; then they start placing them in aisles. This sort of thing continues to snowball until finally the room is full of rejects, with no effort having been made to refinish or dispose of them.

What is the end result of this kind of condition? First of all, when you take finishing space and convert it into storage space, efficiency is certain to go down. Secondly, all of the dirt and dust that collects under such untidy conditions eventually finds its way into the air onto the products being finished. Third, and most important of all, when an operator is exposed to excessive amounts of rejected mate-

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FOR WASHING and RINSING . . . VeeJet Spray nozzles provide sharp, hard hitting flat spray.
Other types include FullJet (left) with full cone spray, Flooding, Drying and Blow-off and Atomizing nozzles.
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rials he is then being encouraged to develop an indifferent and negative "I don't care" attitude about his job. With so many rejects surrounding him he is sure to say to himself, "Well, a few more won't matter." Naturally, when he loses interest in his work and where he works, he no longer puts that little extra effort into what he is doing. Job satisfaction disappears and finally he becomes just another sprayer, and no longer a finisher; for to my way of thinking, a finisher is a sprayer who is striving for maximum quality. Along with discontinuing the paint shop as a storage area, I have noticed that some paint rooms could really save production time as well as production costs in other ways. Air hoses and fluid hoses left to drag on the floor soon become worn and frayed because gun motions are dragging them back and forth and people are walking over them. In addition, air hoses that are hung over air line pipes are bending 90° near the connection, resulting in the hose becoming ruptured prematurely.

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Guns, air regulators, pressure pots, etc., along with spare parts and fittings—all should be controlled and issued by a designated person who is completely familiar with this type of equipment. Only defective parts should be replaced. This same individual should have control of the maintenance on this equipment. Too

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often production is interrupted because spare parts are required, but no one seems to know which parts are available and where they are located. The end result of this condition is usually a rush order for new parts; and then there is lost production time.

Another flagrant violation in some finishing departments is the wastefulness of finishing materials. Paint drums are emptied to the point where further draining becomes perhaps inconvenient. Then a new drum is placed on the rack and the old one is disposed of; sometimes it contains a gallon or more of paint. Drums of thinner are often left open for long periods of time—for the contents to evaporate. Drums of fast spray stains are left open; some of the solvent evaporates and the fine balance between volatile vehicle and dyes is lost, as well as proper color depth when they are used. This is especially where the stain is a small-use item.

Paint pails are emptied and thrown away without first being scraped. Dip tanks are left uncovered when not in use. All of these oversights and inconveniences could certainly add up to a tidy savings if corrected. Yes, good housekeeping is really profitable. How about giving your finishing room or paint shop a careful going over to uncover any evidence of uncleanliness, misuse of space, wastefulness, carelessness, indifference—and perhaps fire hazards.—*M. Cepuch.*

P.P.G. Opens New Research Lab.

Pittsburgh Plate Glass Co.'s paint division opened a new consumer products research laboratory at Springdale, Pa. The new unit completes the division's efforts to centralize and expand the research activities formerly located at Milwaukee, Wisconsin.

Co-ordinating Facilities In a Large Concern

LARGE organizations with plants scattered about over this and perhaps other countries have finishing problems just the same as small individually owned plants. The big companies have the capital to invest in research, testing, evaluation and experimental work. They have good management. They can afford to have and usually do have the "cream of the crop" from top scientists on down to the laborers. They roll along to success by virtue of their magnitude — by the volume of materials they buy and the volume of products they make and sell.

The competitive spirit between plants and between departments of such a large organization provides a powerful incentive to bigger and better production — but if real success and reduced production costs are to be achieved, the heads of the different plants and departments should have some freedom in the selection of what facilities they use. They should not be compelled to buy equipment and materials from the same suppliers, regardless of where they are located. They should not be compelled to gain their end results by the same methods. Still it would seem advisable for the management personnel of each plant to be fully acquainted with all of the methods, materials and equipment that are being used in all of the other plants. After all, it is "one big family." The right hand should know

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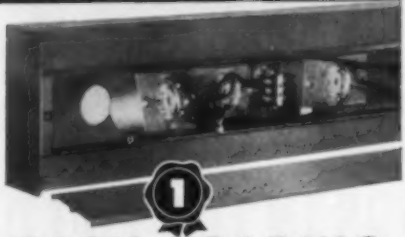
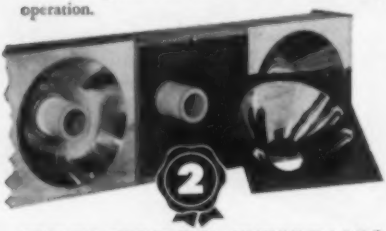


1

BACK-LOADING Infra-Red Generators

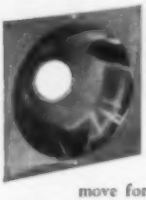
In the past, all infra-red generators have been installed or replaced from the front side of the ovens. Now with new driQuik construction, replacements are made from the back, and can be made by *one* man. Changes can be made while the oven is in operation.



2

REFLECTOR REMOVAL without Generators

Now driQuik reflector removal is simplified with new slip-on design. Only driQuik has it.



3 Stainless Steel REFLECTORS AVAILABLE NOW

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what the left hand is doing. Unfortunately this is not always the case.

Perhaps the answer would be to have a bi-yearly seminar or workshop devoted entirely to company personnel, with qualified representatives of the suppliers of materials and equipment attending and speaking. Perhaps another answer would be to have experienced, individual fair-minded coordinators who would visit all of the plants at regular intervals to study everything in detail and report back to top management.

The yearly earnings of a large concern are not usually based on the performance of any one plant, nor on any one finishing department. Shareholders do not depend upon any one individual nor any one department, but upon the company as a whole. —*T.M.*

Electrostatic; Ionic Eastern

Ionic Electrostatic Corp., manufacturer of electrostatic spray systems, recently granted a sales and service franchise for the states of New Jersey and New York to Ionic Eastern Corp., 120 Park Ave., Rutherford, N. J.

The new sales and service organization is presently staffed with ten technical representatives thoroughly trained at Ionic Electrostatic Corp.'s research laboratory to enhance customer relations and provide immediate attention to their requirements.

Carl P. Rommel, V.P. of R.&D., at Bradley & Vrooman

The election of Carl P. Rommel as V.P., Research & Development, was announced recently by Bradley & Vrooman.

Mr. Rommel, who was formerly Technical Director of Bradley & Vrooman, Chicago, has spent his entire career in the coatings field.

In his new position, Mr. Rommel will not only be responsible for the direction of the Bradley & Vrooman Co.'s laboratories, but will have responsibility for all product development efforts.

Mist Coat — Thin Coat; There's a Difference

IN THE industrial painting and finishing departments the common usage of terminology may, on some occasions, differ from one locality to another. Sometimes finishers in the smaller plants may have ideas that differ from the meanings expressed by chemists and engineers in the larger establishments.

Recently, when I noticed that "thin" coat and "mist" coat seemed to be used interchangeably, I decided to attempt to find out what these terms meant to finishers in varying areas of industry.

Discussions were conducted not only with sprayers and their supervisors, but with some specification chemists within the same plant. Another group included job finishers who explained what they meant when they quoted on a "mist coat" for one side of a part to be finished.

Needless to say it seems that different people have different ideas as to what "thin" and "mist" mean to a finisher. In numerous cases the terms are used interchangeably. Job finishers, for the most part, describe a "mist" coat as a light one-pass spray coating which actually looks like mist or overspray on a part or section of the piece that normally is not visible to the user. For this coat, no change is made in the air pressure or solvent reduction used for the regular topcoat. The coating applied in this manner is usually rough and slightly "sandy" to the

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touch and the film does not give complete coverage.

In the larger plants where standard operational procedures are set up by the engineering department, and where dry film thicknesses are specified in mils, the general concensus seems to be that clear films of 0.3 mils and pigmented films of 0.4 mils are in the thin film category. The thin films are continuous and smooth to the touch. In most cases, in order to reduce film thickness, additional solvent is added so that the non-volatile content is decreased. The added solvent improves the flow-out and lessens the possibility of "starved areas" in the dry film.

It would seem to be evident that a standardization of terms within the industry could remove some of the confusion which now exists. Then if we are to continue using the terms "mist coat" and "thin coat," but standardize on a set definition for each one, some clarification could result. Thus, it might be stated that, "A mist coat is a fogged non-continuous film without regard for coating properties, and is used merely to make the normally unseen and obscure parts of a product more uniform."

On the other hand, a thin coat could be defined as, "A continuous homogeneous film applied at low solids to provide an organic barrier to moisture or chemical attack."

Thus we have defined a difference between the two terms as far as potential usage is concerned. These definitions are offered with the hope that more finishers will become aware of the difference between a mist coat and a thin coat. As a result, some minor problems may be solved.—*G.A.*

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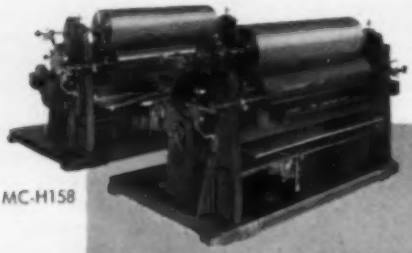

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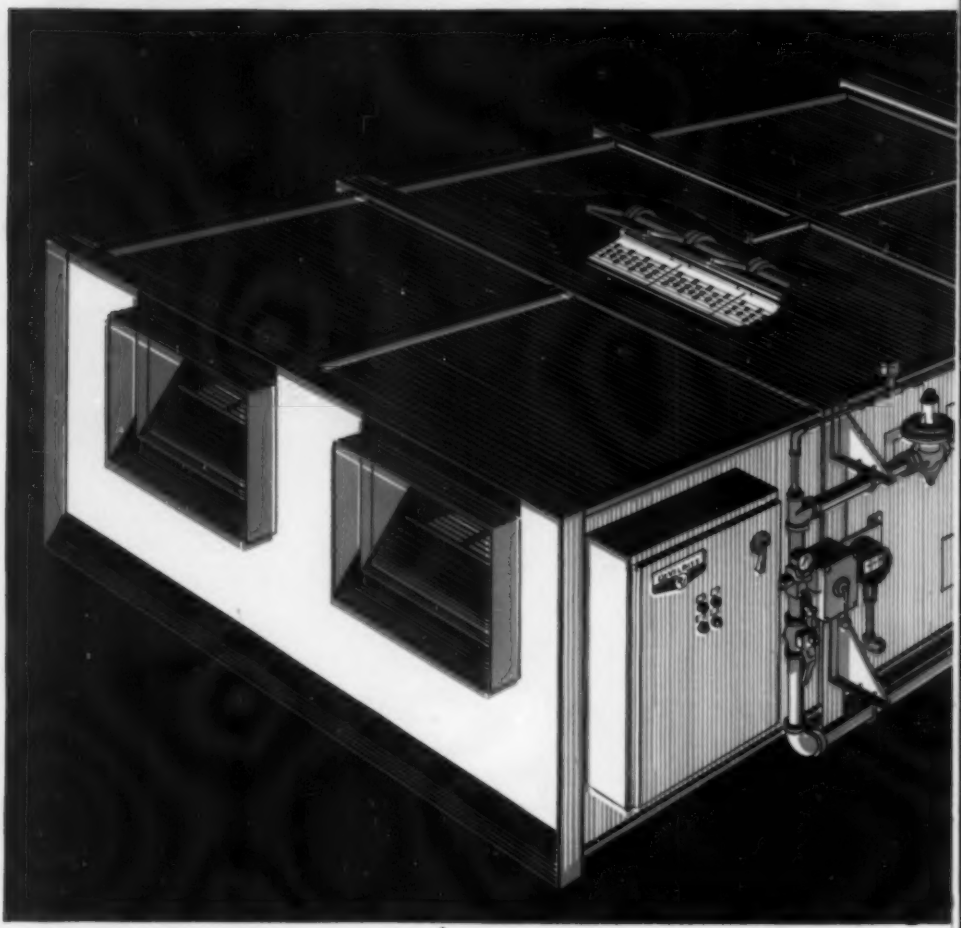
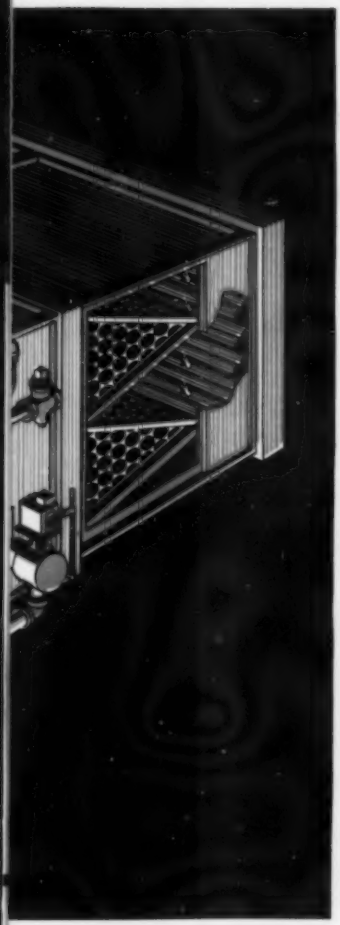


balance

units



Your plant runs more smoothly when you have correct air balance. This means replacing the tempered air you're exhausting from spray booths, bake ovens, plating rooms, welding areas, dust-collection systems, parts washers and similar equipment. You have better ventilation, fewer drafts and cold spots, less heat load on your central heating system. Your exhaust system functions properly; employees are more comfortable. For volumes up to 40,000 CFM, DeVilbiss packaged air-replacement units are your answer. They come complete with housings, fans, burners, controls, filters, dampers, roof or wall air intakes—ready to install. For larger needs, we can design a make-up air system as simple or elaborate as required—manual or automatic—to meet your climate and plant conditions. Call us. Our engineering, fabrication, and installation experience encompasses systems of all types. The DeVilbiss Company, Toledo 1, Ohio. Also Barrie, Ontario; London, England; São Paulo, Brazil. Offices in principal cities.

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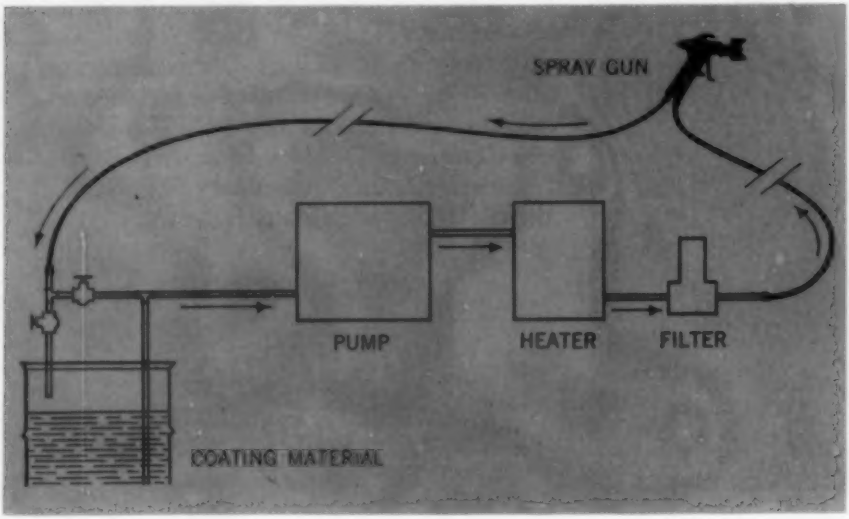
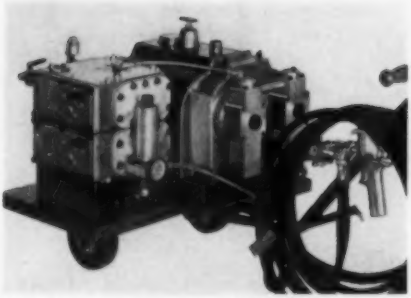
Airless Spray Painting

A brief review of some highlights on the possibilities of airless spraying as a means of applying new protective and decorative paint coatings to manufactured parts & products.

IN REVIEWING the present day position of airless spraying as a system of applying paints, lacquers, varnishes and other industrial finishes, it is helpful to go back to the beginning. What is "airless"? Basically the airless spray technique is an application of an old well-known principle. This principle can be best illustrated by a look at the common garden hose. Here, water under pressure is forced through a hose and nozzle. When the orifice of the nozzle is adjusted small enough, the water is broken up into innumerable droplets—practically a mist. It is atomized by hydraulic pressure. This is the principle of atomizing paint by the "airless"

Diagram of typical arrangement for the airless spraying of heated coating materials.

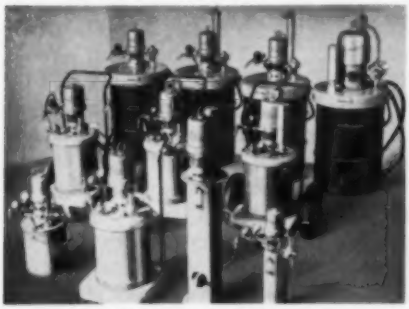




Airless hot spray unit with hose and gun. Photograph, courtesy of The Nordson Corp.

system. The application of this principle of hydraulic atomization to paint is the function of any modern airless spray system.

It must be remembered that water is a "light" liquid of low viscosity, while paints and other organic coating materials tend to be of much higher viscosity and, as a result, they require much higher pressure for atomization. Another problem inherent in the airless system of spraying paint materials is the fact that for the most part these materials contain abrasive substances. As a result the "wear" factor is important in every part of an airless system.



Several models of airless spray equipment. Illustration, courtesy of The Gray Company.

Room Temperature and Hot Spraying—Both Airless

Two types of airless systems are in use today—"cold" (room temperature) and "hot." Each one has certain merits and each one has earned an important place in the paint finishing field.

A typical cold airless system is the simplest and least expensive of the "airless" systems. Coating material is fed to a high pressure pump which pushes it through a

This airless spray unit weighs only 17-lbs. An illustration from The DeVilbiss Company.

paint filter, paint hose and spray gun. Some of the "cold" airless spray systems are normally non-circulating; these are referred to in the trade as "dead end" systems. However, many coatings contain material that tends to fall out of suspension quickly unless there is continuous movement (flow) or

agitation of the coating material. In these cases circulating valves can be added to the system so that the paint circulates constantly, whether or not the gun is triggered.

Pumps for the cold system are available in various sizes. Some can be mounted on a 5-gallon container; others are designed to be positioned on a 55-gallon drum; still other "free standing" models are designed to work from large circulating paint tanks.

With some coating materials the temperature of the liquid material affects its atomization characteristics. Materials that are difficult or impossible to spray at normal or

Upper part of complete Hydra Airless unit. Photograph, courtesy of the Spee-Flo Co.

average room temperatures, employing the hydraulic system, can usually be atomized for spraying when they are properly heated to the right temperature.

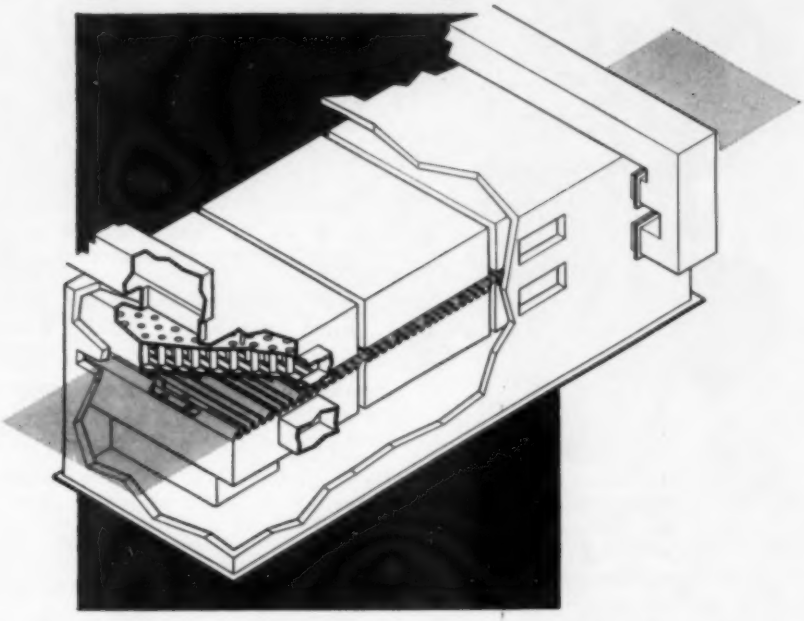
A compact model for use with a paint drum. Illustration, courtesy of Binks Mfg. Co.

Circulating System Desirable, Especially if Material Is Hot

The hot airless system is always hooked up with a circulating valve so that the paint flows constantly, whether or not the gun is triggered. This arrangement assures a controlled heat at the nozzle and at the same time it prevents paint solvents in the material from "kicking out" of suspension.

Because the use of heat lowers the viscosity of most liquid coating materials it is possible to spray them with the hot airless system at lower pressures than what otherwise would be necessary for unheated materials. Advocates of hot airless spraying point out that this use of lower pressure can result in less wear on the pump, hose, noz-

High Velocity DRYERS



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Another portable airless spray unit. The cut is from Aro Equipment Corp.

zles, etc., and that there is less chance for leaks or breaks to develop at the lower pressures.

Room Temperature Material Sprays Well With New Gun

An improved spray gun has been developed and is now in use which gives excellent atomization of most paint materials sprayed with the airless system at room temperature. To quote the head of a concern that offers this improved spray gun, "We contend and can verify that any type of material that can be sprayed with the conventional type of hot airless, can now be satisfactorily sprayed with an unheated airless system with the improved gun. An interesting observation would be to check in the high-quality furniture-finishing area of North Carolina, for example, and note the number of full production installations of airless [spraying]. . . ."

When heat is used with the airless system it is possible to atomize more viscous materials without the use of so much solvent. This makes it possible to apply a heavier film per pass of the gun. In fact, it is often possible to apply as much as a mil thickness in a single coat by spraying heated material with the airless system.

Airless Has Limitations Too; Find Out Why, When, Where

It must be remembered that the airless system is not cheap. One manufacturer of hot airless spray equipment reports that unless $100 or more a week is spent for coating

This one operates from a 5-gallon container. Illustration, courtesy of Balcrank, Inc.

The Interlox line was developed to give you a better, lower cost, easily controlled phosphate coating. Its exceptional cleaning ability combined with a radically different type of accelerator produces an even, fine grained, dense coating which locks your organic finish to the metal.

Interlox eliminates streaks, stains, powdery deposits, and flash rusting, giving you the ultimate in appearance, adhesion and resistance to humidity and salt-spray.

Additional cleaning power is easily obtained, when desired, by the addition of a low-cost detergent only, thus avoiding the danger of over-phosphatizing and the costly practice of adding complete phosphatizing compound when only cleaner is required.

There is an Interlox product developed to meet your particular need whether spray or immersion type, single or multiple stage. Interlox baths are unusually long lived and require less additions and control.

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materials, airless spraying may not be justified. If frequent color changes are necessary, the conventional compressed air spray system may be more desirable, more convenient and more economical. A few types of materials—specifically multi-colors and hammer-effect finishes—often break up under the high pressure of airless spraying.

Anyone who may have in mind purchasing new painting or finishing equipment should give careful consideration to all spray finishing systems. Generally speaking, if your consumption of paint is low, a simple compressed air atomization system may be adequate for your needs. If your consumption of coating material runs into hundreds of gallons per month you would do well to investigate the merits of both cold and hot airless spraying. Trained representatives of manufacturers of all systems will gladly demonstrate to you, right in your own plant, what each system can do for you, using your coating materials and painting your products.

Spray Powdered Epoxy Resin Coatings Dry

EPOXY-resin-base enamels have been applied to many products in recent years to provide a tough, durable resistant coating—to enhance the appearance and prolong the useful life of various products.

Spraying the dry powdered epoxy resin on a heated part in the plant of Industrial Plating Works, Seattle, Wash. Photograph courtesy of Minnesota Mining & Mfg. Co.

Now a new concept of coating with pure epoxy resin has been developed. The finely powdered resin may be applied to any properly cleaned metal surface, whether flat, curved or of intricate contours. The coating, properly applied to metal surfaces, will resist moisture, most acids, alkalies, chemicals, salt water, strong impact, abrasion and the effects of electrolysis.

The parts to be coated are preheated to a temperature slightly above the melting point of the resin. Then the dry epoxy resin powder is sprayed onto the parts with a flocking gun. Upon contact with the hot metal surface, the resin flows out smoothly to produce a coating of uniform thickness. The coating shown being sprayed in the illustration is called "Scotchkote No. 101."

The powdered epoxy resin can also be applied to heated metal parts by dipping them into an aerated bed of the resin.—*B. C.*

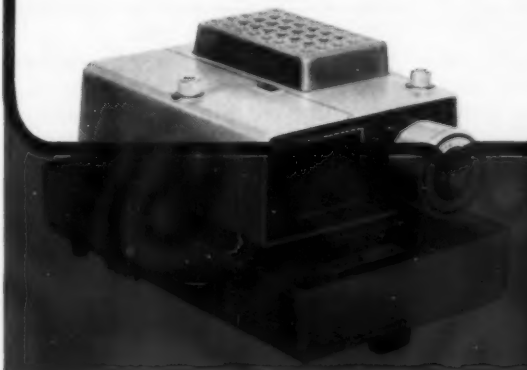
Dry chemical has long been recognized as an effective fire extinguishing agent for flammable liquid, gas and electrical fires.

Cook's is part of the **argus** picture

Argus optical and engineering excellence have become a tradition in American photography. And Argus quality is further reflected in the trim, clean styling of these products.

Cook's contributes to this eye-appeal—with industrial finishes used inside and outside Argus cameras and projectors.

What about your product? Maybe Cook's Industrial Finishes can enhance its buy-appeal, with a better coat of beauty and protection. And give you important production economies as well.



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Finishing Croquet Sets

By Henry Herman

THE FOLLOWING question has been referred to me for suggestions and comment:

"Can you tell us what finishing materials and methods are best adapted to finishing mallets, balls and posts for croquet sets in the medium-price bracket?

"The balls are finished in solid colors but mallets and posts are finished natural and are color-striped. The finish must be reasonably resistant to outside exposure, but not too expensive. We are interested in modern production finishing methods to handle an appreciable volume of work."—*W. O. C.*

I don't believe that anyone can suggest, offhand, which finishing materials and methods are best suited for your requirements, without examining all of the factors involved. All I know, from what you have stated, is that the product involved is contained within the medium price range (selling price) and that the desired coating material should not be "too expensive."

Variety of Coatings Available; Call in Your Supplier

This means that any suggestions forthcoming would have to describe the myriad range of coatings in the alkyd, acrylic and vinyl groups —as well as describing all the possible methods available for production application. Assuming that this were practical, it would still be difficult and costly to adapt a selected combination to suit your requirements. This would involve a hit-and-miss choice until you found the happy medium. The materials and methods employed by even your closest competitor probably would not suffice for your situation—for reasons peculiar to your own production requirements, working conditions, personnel, facilities, controls, costs, etc.

Some suggestions on materials and methods to consider for a setup to finish and stripe wood croquet mallets, balls and posts.

The problem of coating selection should be left entirely to your supplier—or you might call in several men representing different sources of coating materials. Assuming that you select an alkyd resin coating, you will have to determine which coating contains the proper solids content to provide the desired results. In other words, if *X Co.* supplies you with a 30% solids material, that company did so because they felt this was what you

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2. Give appearance of a wiping stain and impart very good color uniformity to the wood.
3. Air dry in one hour.
4. Can spray chairs and other pieces with hard to reach corners without showing white lines.

Order a 5-gal. can at drum price and convince yourself.

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needed. If *Y. Co.* should come along and offer you "the same thing" at a 15% price reduction, I think then that it is safe to say you will not get "the same thing."

Don't "dicker" with quality simply because you believe price is a factor. It is a false theory of economics when cost of materials becomes the prime consideration over labor costs.

Consult with your supplier first before you begin "price shopping." You may be pleasantly surprised to learn that the best material is available to you at a cost that really is not expensive after all.

Methods of Application; Dipping or Spraying

The methods best suited to your conditions would be another situation wherein you would have to rely on several different points of view. Unlike selecting the product of a chemical formulary, wherein the results have been prearranged, you would be more or less at the mercy or discretion of the equipment supplier. Here is where costs really affect the end result and your budget should be your guide —and here is where the equipment supplier has a chance to exhibit some ingenuity and know-how.

It would seem to me that the only two logical methods applicable in your situation would be dipping or spraying, or a combination of the two. Dipping would present more complications—involving the working area, maintenance, solvent control, flash-off and drying, coating inventory, dipping racks and fixtures, as well as the cleaning and maintenance of same. Pigmented materials would require the addition of agitation facilities to assure uniform pigment suspension.

Since the rate of withdrawal (from the dipping tanks) will be painfully slow, it will be necessary to have large enough tanks to accommodate a number of dipping fixtures or racks. Where the withdrawal is appreciably speeded up, the balls (coated) would have to be subjected to a centrifugal action which would slow up the material flow and allow a more uniform coating. Dipping racks can be designed which would permit the balls to rotate as they are lifted from the tank. However, this is getting to be expensive.

Finishing Mallets and Handles; Dipping; Squeegeeing; Striping

If the mallets are to be coated with the handles assembled, then the dipping setup is recommended. Otherwise, the handles can be quickly coated by running them through a coating head wherein a coating material is applied and the excess is removed as the handles leave the coating head. This is known as "squeegeeing" and is used for coating broom and mop handles, pencils, etc.

The striping of the handles could then be accomplished by rotating the handles under a gang of mechanical stripers, or a gang of rubber discs (modified roller coater), or a reciprocating silk screen. Actually, the striping and coating of the handles should be very simple—and there are more variations on how this can be done.

In this case I would select automatic spraying as the most flexible

system to provide all-around results. Less working area is needed, maintenance is lower, inventory is a fraction of that of dipping, viscosity and solvent control offer no problems, and the initial cost would be still lower.

Automatic Spraying For Balls and Mallet Heads

In an automatic spray setup, the balls would be carried on pronged spindles which rotate as they pass stationary guns. At most, three guns is all that would be necessary. The spindles could be loaded by a hopper synchronized with the conveyor speed, and unloaded by some simple mechanical means.

While prong marks may show on the balls, a little ingenuity is all that is required to eliminate this. Where two topcoats are involved, the marks are obliterated with the second coat, as the balls change position on the spindle. However, spindle design as well as the action in front of the guns can eliminate these objections. The coating of the mallet-heads can be accomplished in the same manner, with a slight modification.

In view of the absence of more pertinent data about what you want, I can only offer a generalized picture. In your particular case, perhaps due to geographical location, I would suggest that you talk with a competent consultant who would be able to provide you with a trouble-free method. However, if these comments have stimulated some specific ideas, take it up with certain suppliers who have previously demonstrated to you that they have constructive know-how.

Handling Heavy Coils of Metal to be Coated

DO YOU have a production setup for continuous strip coating? Aluminum and steel coils can be extremely heavy and unwieldy, especially in wide widths and the heavier gauge metal. The coils are heavy and time for handling the coils is limited; the strip coating line moves continuously.

If your operators are having trouble or difficulty in loading unfinished strip coils, perhaps a coil loader and unloader is the answer to your problems. Both the loader and unloader are identical in design. They may be manually operated or motorized.

These loaders and unloaders are built to operate on tracks embedded in the concrete floor. The tracks are at right angles to the unwind and rewind equipment. Each loader has a mandrel to hold the coiled metal so it is positioned exactly at the correct height and center of the unwind and rewind reels.

Transfer of the metal coils from the loader and unloader may be manual or motorized, depending upon the weight of the coils to be handled. The coiled metal may be mounted on the loader truck well in advance; then when the time comes for a change of coils, the transfer can be made quickly, safely and efficiently.

Many factors affect paint stripping —the type of paint, condition of the metal surface, presence or absence of conversion coatings, method of paint application and baking cycle.

ALMOST NOTHING

Even the stickiest glues, paints and foodstuffs can't get a grip on Du Pont TEFLON finishes. So slick they're virtually self lubricating, these finishes can bring the ultimate in release properties to your product. They are unaffected by temperatures from 480°F. above zero to 390°F. below.

TEFLON finishes also offer 100% water repellency, complete inertness to almost every known chemical and excellent electrical properties. They are profitably being used on such products as home cooking utensils, paint mixers, dry-ice platens, centrifugal pumps, valves, glue dispensers, mandrels, extrusion dies and many more.

HOW TO APPLY: TEFLON finishes are primarily for spray application. On certain articles, dipping or flow coating may be practical. After application, the water is permitted to evaporate at room temperature or by force drying. The article is then sintered at 750°F.

A number of concerns have been set up as TEFLON applicators to handle special coating jobs for those who cannot bake at required temperatures. Du Pont will send names and addresses of the TEFLON applicators in your area on request.

Write: E. I. du Pont de Nemours & Co. (Inc.), 2500 Nemours Bldg., Wilmington 98, Delaware.

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TFE fluorocarbon resin

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EDITORIALS

Good Surface Preparation Solves Paint Problems

★ The term "metal preparation" is so widely publicized that you find many finish supervisors who feel that they know all there is about this subject. It is usual therefore to find this type of individual in trouble. In fact he has changed paint suppliers so often that he is now starting on his second, third or fourth go-around. He doesn't believe that his metal preparation methods are at fault. Instead it is always the lacquer or enamel that fails to provide adequate adhesion.

One supervisor in this classification called his supplier and complained that the paint company was not putting enough acid in its paint, and that other suppliers put more acid into their lacquer. Of course, it is well known among paint formulators that a little citric or phosphoric acid may help adhesion, but exceeding the minute limits can actually destroy coating adhesion; and it will definitely diminish water resistance, particularly if the metal surface has not been properly cleaned or prepared.

Mill scale from hot-rolled steel still seems to give the most problems. It is amazing to find metal finishers of 20 to 30 years experience who do not know there is a difference between hot and cold-rolled steel—and, of course, they cannot distinguish between them. Admittedly, even an expert may have a little difficulty in seeing the difference at times but, for the most part, hot-rolled steel is characterized by its dark colored mill scale.

Manufacturers of metal preparation compounds have many products that can be used to overcome the problems of mill scale, but if the finisher refuses to recognize these problems, the manufacturer of compounds

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

★★★ INDUSTRIAL FINISHING wishes all of its friends a Merry Christmas and a Safe, Happy, Prosperous New Year

has a hopeless task. The enamel and lacquer people then have an even greater problem, for the failures are attributed to their products. Any coating may have excellent adhesion to mill scale; in fact, mill scale may even promote adhesion to itself, but what happens when mill scale loosens itself from the metal and takes the paint with it?

Initial adhesion of the paint coating may not be a problem. It is the loss of adhesion that develops in service which actually produces complaints. Rust or iron oxide on a metal surface may not initially cause any harmful effects. However, after the paint coating has been applied, the rusting process continues under the film. The loose powdery rust thus formed prevents the organic film from binding itself to the metal—and chipping and peeling occur.

Paint technology is constantly progressing, with new and improved products making their appearance. The best material available will not overcome deficiencies of inadequate metal preparation. This point has been publicized to the point of exhaustion, but with all that, problems of this type are increasing. On a technical service call one sometimes feels discouraged and disgusted, when quite obviously the basic step of metal preparation or actually the lack of it, is causing all of the problems. So, adding our two bits worth to the cause, we state again that *metal preparation is the most important factor in successful industrial coating.—N. Gaynes.*

The ultimate key to the reliability of equipment is its design. Even the most careful selection of components, based on the most strict evaluations, can do little to improve the reliability of an unsound design.

What Is Quality? It's Up To the Individual

★ There are a number of conceptions as to what quality is and what it actually consists of. Some people contend that quality is a matter of opinion, and that because opinions vary so much it is difficult to determine what the actual quality of a product should be. Another conception of quality is the arbitrary setting up of standards and then forcing the use of these standards.

Then there are those who think that quality is a matter of good judgment—that all one has to do to produce quality products is to use good judgment in manufacturing the product.

There is still another interpretation which says that quality is a relative thing and, because of this, it is hard to set specific standards of quality for any product.

One must admit that all of these ideas, as to what quality consists of, have some merit. For example quality is, to some extent, a matter of opinion. Therefore it is possible for two people to have two different opinions about the quality of a specific product.

It is necessary to set up basic quality standards for a product. These standards are, of course, based on price, style, use, and upon customer acceptance.

Then there must be compliance with the standards that are set up, through inspection and the cost of auditing. Quality also is a relative thing. The design, the style, the color, the raw materials used, and the production cost—all have their effect on the quality of the end product.

But quality is more than a matter of opinion. It consists of more than just setting up standards. Basically, quality is *you* because no product is any better than the people who make it. In creating a quality product it

is important that everyone connected with production have pride in his work.

I know that quality can be pointed out as an end product of a finish produced on a modern and conveyorized finishing system. However, some individual had to design that conveyor system; another had to create and work out a color; still other people had to build into the finishing materials the quality necessary to produce a quality finish. And certainly someone had to watch over the finishing operation to see that the quality was up to standard, and kept there.

In order to produce quality products, it is necessary to have the spirit of quality-mindness extending from top management right on down through the organization to every man on the production line, for quality is people—people just like you and me.

Quality is a partnership of human beings such as researchers, stylists, engineers, production workers, office workers, inspectors, shippers, and salesmen, all working together. Quality then, as a whole, is the pride of the craftsmen whose complete happiness comes from doing the best job they can. Therefore quality is in reality the individual, the human being.—*H. W. Chester.*

Put Customer's Name on Containers of His Paint

★ Today it is pretty hard to find a competitive advantage in the field of making or selling paint finishes for industrial use. Competition being so fierce, most companies are offering their utmost in the matters of price, service and such things. These are all useful in getting and keeping customers for paint.

However, there is one "gimmick" that costs practically nothing, yet no one would ever dispute its value as a sales tool. It is often overlooked by companies that are both progressive and aggressive in every other way.

Well, to relieve your suspense, it is the simple business of putting your customer's name or trade-name on every can of paint material he buys. You well know that the sound of a man's name "is music to his ears"—and companies are no less suspectible to this flattery. It takes the sale out of the realm of routine commercialism by adding a bit of close personal touch between the principals. Even though the product may be of the most commonly stocked variety, the customer's name on the label implies that this product was selected for this particular customer. As long as any of it remains in the customer's possession, his company's name on the label reminds him of the maker's desire to continue serving him.—*G. C.*

Transparent Finishes; Can You Use Them?

★ Much can be said for a finish with good hiding, but sometimes a transparent or semi-transparent finish will do a better job. Using a transparent finish over a white, off-white or aluminum background is not new. Many companies have been doing this for years, but I think many other firms would find use for this idea. Finishes with a brilliance and gloss that might be hard to duplicate with an opaque coating, can be obtained in this manner.

Light goes through the finish to the background and is reflected back through the transparent coating to the eye of the viewer. Inasmuch as little pigment or dye is used, this sometimes can be an inexpensive way

of achieving a very pleasing finish —particularly if the light background is present anyway. This would be the case, for example, when coating aluminum foil, or if a white basecoat was used for sealing a porous substrate. Often a thinner film can be used with a transparent finish than with an opaque finish. This can be a further saving.

Transparent finishes are not suitable for every use. Many of these finishes (but not all) have poor resistance to light. An opaque pigment, on the other hand, generally does a pretty good job of shielding the vehicle from the effects of sunlight. Another point to take into consideration is that the basecoat or surface underneath must be uniform and free from blemishes, as these blemishes will not be hidden completely by the topcoat.

A third point to remember is that the color of the coating will vary with its thickness, therefore transparent finishes are generally used only on objects so shaped that a uniform film thickness of finish can be applied.

Despite their limitations, transparent and semi-transparent finishes can often be used to produce highly desirable decorative effects. More companies should take advantage of them.—*Joe Gordon.*

FIGHT TB WITH CHRISTMAS SEALS

Answer Your Christmas Seal Letter Today

See an Accident or Fire Hazard? Correct it Now!

★ Production schedules are essential in the finishing department. Without them costs could go skyward while production tumbled. But there are exceptions. Safety and fire prevention should be handled promptly when the need becomes apparent. What is noted today as requiring attention should not be delayed for a more convenient time.

The superintendent, the foreman and every employee—everyone should be equally alert to see where danger exists or where improvements are possible. Action should follow without waiting for an "open spot" in the schedule. "Next Thursday" may find a worker already missing from his job because he met with an accident that prompt correction could have prevented. "Next Thursday" the finishing department may have a serious fire due to conditions noticed earlier, but about which nothing was done.

Don't risk forgetting about safety and fire prevention details. Don't expect they won't happen ahead of your scheduled time for taking care of them. Above all, set an example for workers by proving that management considers these matters important enough for priority handling. Not next Thursday! Now!—*G.Dodson.*

Specifications are nothing more than formal statements of required or expected characteristics which serve to guide the development of products or processes.

Hand-decorated
Italian Provincial drum table
by Majestic Wood Carving Company,
in Pomona finish protected
with a Butyrate lacquer.

The finest furniture deserves the finest finish...

a **BUTYRATE** finish

Majestic Wood Carving Company preserves the distinctive beauty of its finest pieces with a Butyrate topcoat lacquer manufactured by the American Varnish Company, Chicago. Another example of a leading manufacturer of fine furniture matching the excellence of its design and craftsmanship with the highest quality materials obtainable.

Finishes based on Butyrate are stain resistant and non-yellowing. They can be applied easily and quickly with conventional equipment, dry dust-free in minutes. For more information about Butyrate lacquers, talk with your lacquer supplier. Or write Chemicals Division, EASTMAN CHEMICAL PRODUCTS, INC., subsidiary of Eastman Kodak Company, KINGSPORT, TENNESSEE.

NON-YELLOWING, STAIN RESISTANT

BUTYRATE

TOPCOAT LACQUER

SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; Atlanta; Boston; Buffalo; Chicago; Cincinnati; Cleveland; Dallas; Detroit; Greensboro, N. C.; Houston; New York City; Philadelphia; St. Louis. **Western Sales Representative: Wilson & Geo. Meyer & Company,** San Francisco; Los Angeles; Salt Lake City; Seattle.

For more data, circle 189 on colored card.

LETTERS from READERS

Ink for Polyethylene

We are interested in locating a supplier of an ink or stain which would enable us to rubber stamp Hi-density polyethylene. We have seen articles so stamped and it seems to penetrate slightly into the plastic.—*V. Corp.*

In a letter we are giving you the name and address of a company which, we feel sure, can supply what you want.—*Editor.*

Continuous Spray Priming of Rolled Steel Strip

In Sept. issue, pages 30-39, we read with great interest the illustrated article by Norman C. McGregor, "Continuous Spray Priming of Rolled Steel Strip."

We would appreciate, if it is possible, a few reprints of this article for distribution to our executive officers. The reason for this is that we are at present installing a similar system for one of our products and it is involving considerable experimentation, due to certain factors, such as speed, space, etc., which is causing certain misgivings in the corporation headquarters.—*N. Steel Works (Canada).*

We have no reprints, but are sending you a few copies of the magazine and some tear sheets of the article. —*Editor.*

Roller Coating Machines

In the Sept. issue, we saw a bench model, roller type, glue applicator advertised. We sent in the request card but must have circled the wrong number. We failed to note the name of the manufacturer and the issue has been misplaced. We have unsuccessfully searched copies from other months.

If back issues of *Industrial Finishing* are available, please send us the Sept. issue and bill us for the costs.

If back issues are not obtainable, we would appreciate any help you can give us in contacting the advertiser or any other manufacturers of roller type glue applicators.—*M. Products.*

The ad you saw was on page 117 —the L. R. Wallace & Co., 172 N. Vernon Ave., Pasadena 3, Calif. In a letter we are giving you the names and addresses of other manufacturers of roller coating machines.—*Editor.*

Abrasion Resistant Coating

In the "Letters from Readers" for October issue, page 90, reference was made to an abrasion resistant coating for steel by the L. Mfg. Company.

Polyurethane resins are generally recognized as being among the most abrasion resistant family of resins currently available to industry. If the L. Mfg. Co. would be interested in polyurethane resins, Trancoa

PERFEX SATIN FINISHES FOR CHAIRS

No Rubbing Needed!...

Many chair manufacturers are using Perfex Satin Finishes to secure that rubbed appearance and waxed feel – without the costly rubbing operation – and while Perfex Satin Finishes are ideally suited to chairs, *numerous other pieces of furniture are likewise candidates* for these labor-saving, time-saving finishes.

Perfex was the original "flat" to be made by a new and different process (without the use of stearates or flattening agents) and it is still the "flat" which comes nearest to producing an actual rubbed varnish appearance. It is the Perfect flat finish–quick set, quick dry, waterproof, liquor proof, good build, full smooth body, beautiful rubbed effect, smooth waxed feel. Available in a full range of sheens.

PERFECTION

If you manufacture chairs or other furniture and are interested in securing an excellent rubbed finish effect, without a costly rubbing operation, we invite your inquiry.

PAINT AND COLOR COMPANY

INDIANAPOLIS 2, INDIANA

For more data, circle 190 on colored card.

(manufacturer of these resins) would be pleased to recommend paint companies experienced in the formulation of these resins into abrasion resistant coatings for steel.—*W. M. Co., Sales Manager, Plastics Division, Trancoa Chem. Corp.*

In a letter we are giving you the full name and address of this concern. —*Editor.*

"Don't worry, sir, I won't tell anyone in the plant how much you gave me as a Christmas bonus—I'm ashamed of it too!"

Ind. Drying Consultant

In October issue, page 92, a reader (A. W.) requested a consultant in the New York area for an industrial drying application. If you will advise me of his name, I will be happy to contact him. I believe I can supply the service he seeks.—*Russell W. Wynen, 139 Birch Drive, New Hyde Park, L. I., N. Y.*

Information given.—*Editor.*

Flock Coating Concerns

Dear Mr. Bardin: We read with interest your illustrated article in the Sept. issue, pages 48-52, referring to methods of applying flock coatings.

We are interested in applying flock to sheets of material and wonder if you can assist us in locating companies equipped to do this type of work. Also, we are interested in getting the names of manufacturers of machines adaptable to flocking sheets of material.—*T. C. Leather Co.*

In a letter we are giving you the names and addresses of suppliers of flock, flock-coating equipment, and concerns that do custom flock coating for other companies.—*Editor.*

Painting Molded Plastics

Would it be possible for us to receive about 12 copies of the article, "Good Design Simplified Decorative Painting of Molded Plastics," which is on pages 43, 44, 46 and 48 of the October 1961 issue of *Industrial Finishing* Magazine?

We would like these for distribution to our sales staff, as we feel this is an excellent article.—*H. Chemical.*

Yes, we happen to have a few extra copies of this issue and are sending 12 to you.—*Editor.*

Dip Painting Equipment

We are interested in hand and hoist dip practices. We would like the following information:

1) A list of companies who manufacture dip paint stations: a) hand and hoist type, and b) conveyorized.

2) Information on standard practice on dip paint stations. [*To p. 86*]

America's leading Can Companies count on O'BRIEN

A vast variety of the consumer products sold today in metal containers are protected perfectly and packaged attractively *thanks to O'Brien Metal Decorating Finishes.*

These highly specialized coatings help to maintain the high quality and purity of the product throughout its "package life." They give the package color and eye-appeal so necessary today in mass marketing.

for example

O'BRIEN LINER COATING:
Completely resistant to products in the container. Prevents corrosion. Non toxic. Never changes the taste of canned beer, fruit juices, foods. Resists attack of metal by hard-to-hold non-foods.

O'BRIEN BASE COAT:
This enamel has high, one-coat hiding, good forming and excellent color properties, good ink receptivity.

O'BRIEN CLEAR WET INKS:
This final coating on the outside of the container has excellent adhesion to all types of inks and background enamels. Excellent abrasion resistance. They look better longer.

"It's the finishing touch that counts"

O'BRIEN
INDUSTRIAL FINISHES

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3) Safety requirements for dip paint operations.

Information on any phase of dip paint operations will be appreciated. *—T. J. L. (Project Department).*

An illustrated article on this subject appeared in Nov. 1961 issue, pages 58-68. We are sending you a copy of this. Many others have appeared in past issues of *Industrial Finishing.*

In a letter we are giving you names and addresses of several manufacturers of dip coating equipment. Most of these concerns can supply you with specific information about their equipment and suggested methods.

For information about safety requirements, we refer you to the National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.—*Editor.*

For Striping V-Grooves

We have noticed inquiries in the Letters from Readers section pertaining to the problem of color striping V-grooves in decorative panels, plywood and hardboard. You and your subscribers will be interested, we think, to know that we manufacture a groove striping machine which applies the coloring in a roller wheel operation.

Using a special paint or coloring preparation, we are having success in laying full, clean lines in all of the materials we have experimented with so far. Extensive testing prior to the manufacture of an actual striping machine indicated to us that the most practical approach to this problem lay in the use of the roller wheel method, in combination with the coloring material referred to above. Production use of the machine has convinced us that we have a relatively simple and trouble-free device for doing a rather difficult job.

Our machine, which is trade named the "Multi-Striper," is primarily designed to operate in conjunction with the Multiscore Panel Grooving equipment, although it can be used independently in a separate process.

Referring to the accompanying picture you will note that the machine is power fed with an adjustable speed motor. Striping of the V-grooves is accomplished by applicator

For color striping V-grooves in plywood.

wheels properly positioned and shaped to fit the customer's grooving pattern. A special pigmented coloring material is available with the machine.

As in our groovers, the panel is fed to the machine in an inverted position, this being done to provide for a straight line operation from groover to striper. We use spring loaded pressure on wheels and a follower in the groove to pull paint into the deep spots.—*Multiscore, Inc., 1123 W. 51st St., Seattle 7, Wash.*

Non-Glare Window Coating

One of our customers, whose 70,000-sq.ft. one-story factory building is almost entirely constructed of clear glass panels, wants a protective ma-

WOOD-LITE

simulates the BLEACHING PROCESS

WOOD-LITE produces a clear finish that closely resembles the bleaching process.

A number of manufacturers of fine furniture have learned that the use of WOOD-LITE simulates the bleaching process so well that they have adopted it as being very efficient and most economical.

WOOD-LITE is something radically new and different from the ordinary Toners or Stains, produces a clear finish that closely resembles the bleaching process.

WOOD-LITE is made in various shades and is ideal for such woods as Walnut, Cherry, Butter-Nut, Maple, etc. Finishing coats of our Mar-Proof Crystal Lacquer are suggested for color retention and durability.

Write us for samples and particulars in finishing.

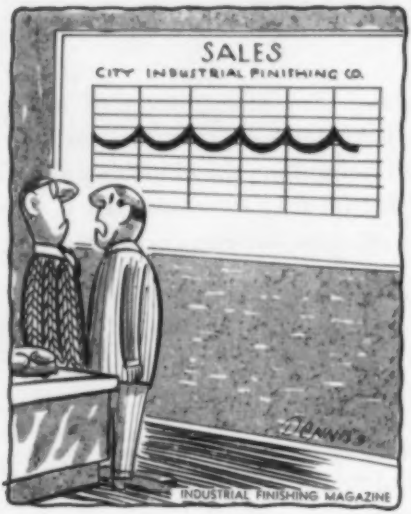
THE SCHAEFER VARNISH CO., INC.

15th & Magnolia Streets • Louisville 10, Ky.

For more data, circle 192 on colored card.

terial against the sun's rays. Our customer claims that a bluish transparent coating, which can be sprayed, is manufactured for such a purpose. We would appreciate it if you could help us locate such a manufacturer. —*F. S. (Sales).*

In a letter we are giving you names and addresses of ten concerns that offer non-glare coatings for window glass.—*Editor.*



"I feel seasick."

To Fill Holes in Wood

In October issue, page 98, the D. Furniture Co. asked you to suggest a patching material to fill holes and checks in lumber prior to finishing. Will you please send us the same information?—*R. S. T.*

Information forwarded by letter.—*Editor.*

Lacquering of Panels

One of our customers is interested in obtaining a machine suitable for the continuous lacquering of panels. Panels to be finished are up to 48-in. wide. Please give us the names of manufacturers who might be able to supply equipment for this purpose.—*L. Company.*

In a letter we are sending you names and addresses of concerns who can supply roller coaters, flow coaters and curtain coaters. These three types of equipment are suitable for doing this work.—*Editor.*

Plastisol Coatings

On page 98 of October issue of *Industrial Finishing*, you mention the name of Specialty Coatings, Inc., Div'n. of Thompson & Co., under the heading of Plastisol Coatings.

Will you please furnish us with the address of this company, as well as any other companies who handle plastisol coatings?—*F. Mfg. Co.*

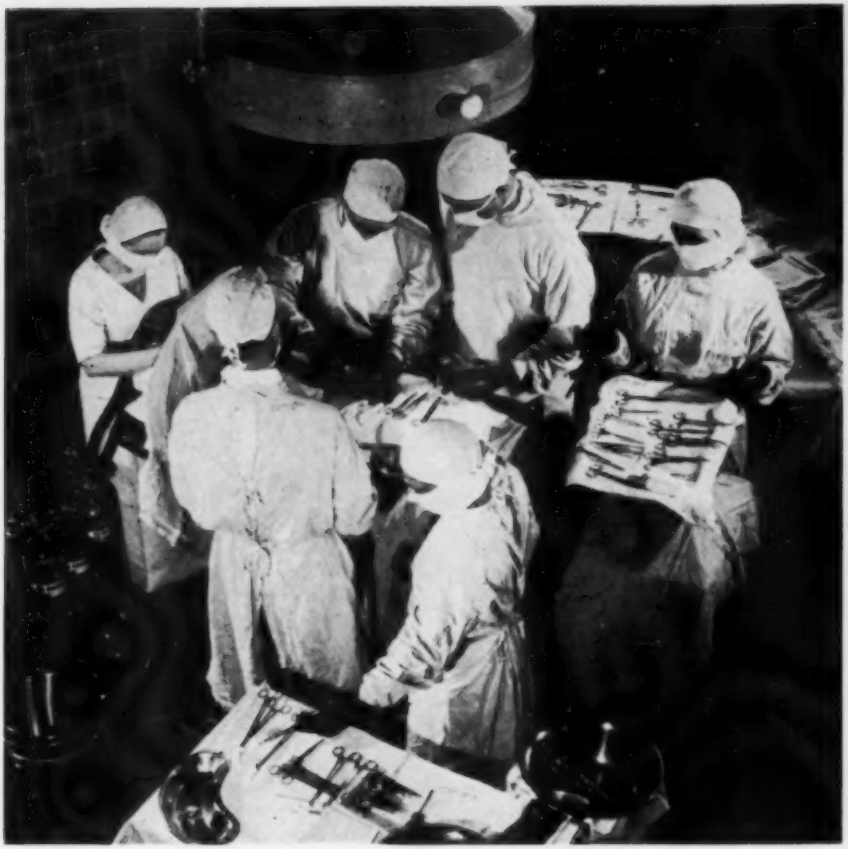
Information supplied by letter.—*Editor.*

For A Gold Crackle Finish

We refer to "Letters from Readers" in October issue, page 90, in which "Ph. Co." inquires about suppliers for gold crackle finish.

As manufacturers of bronze powders we would like to get in touch with this company and would appreciate your sending us their full name and address. — *Atlantic Powdered Metals, Inc.*

Information supplied.—*Editor.*



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F&C

Write for data sheet No. 12141 on F & C "Golden Glow"—"Brass look" epoxy enamel.

FLOOD & CONKLIN MFG. CO. / 136 Chestnut Street, Newark 5, N.J.

Coatings of Scientific Reliability Since 1892

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Effective Stripping; Recovering Rejects

IT IS POSSIBLE to reduce the number of rejects, but as long as rejects are inevitable, a fast economical means of stripping the finish is highly important. Likewise the specific type of stripper used is equally important.

One does not use the same solvent in all types of finish materials, and by the same token, the same stripper will not remove all types of finish effectively. Strippers are now available for epoxy resins, acrylics, vinyls, polyesters, lacquers and enamels.

Choosing the correct stripper will make it possible to recover all of your rejects rapidly and economically.

Color Stability in Finished Surfaces

COLOR STABILITY is one factor that is sought by every manufacturer who uses paints or finishing materials. Success is not always easy to come by. Reasons why colors change could be many. Some colors have a tendency to be fugitive; some of the color escapes. In some cases a change in color is due to the bleeding through of an undercoat or an ink used in printing wood grain, textile, marble or other patterns. In other cases the type and quality of the finish coating material could be responsible for the off-color in your product.

Color changes should be classified in two groups; that is, natural and man-made. If the change in color is due to natural causes, then there is little or nothing that can be done to prevent it. For instance, if the product is made of wood, the wood itself may change in color or darken with age. Some species of wood and some pieces of wood in the same specie will darken more quickly than other pieces or other species. If the wood changes color or darkens, the highest grade of clear or water-white lacquer top coats cannot prevent the color change from taking place.

If the reason for a color change is man-made, in most cases it can be corrected. When first discovered, the matter should be brought to the attention of the finish material supplier. Working with him, a study should be conducted of the material from which the product is made. This can be followed by a study of the surface preparation methods and materials. If it is a wood product and if it has been bleached, what methods and what materials were used that might cause a color change?

Next in line are the undercoats, the finish coats, the finishing system employed, baking time and temperature. With the help of the finishing material laboratory, the cause of the color change will probably be discovered so that corrective measures can be taken. —*C. P. B.*

Screen Process Work

AUTOMATIC and semi-automatic presses have revolutionized screen process printing. Fast drying inks and modern force-dry ovens have contributed to reducing operational areas as well as speeding up the work. Metal screen frames are lighter in weight than wood, they are less cumbersome, more durable and permit greater printing area. Screens made of maetrials other than silk, such as stainless steel are not as easily damaged, and they last longer.

The big problem in management is how to hold and promote good men so that companies can stimulate them to put out their best efforts.

Epoxy Paint Stands Up In Corrosion Tests

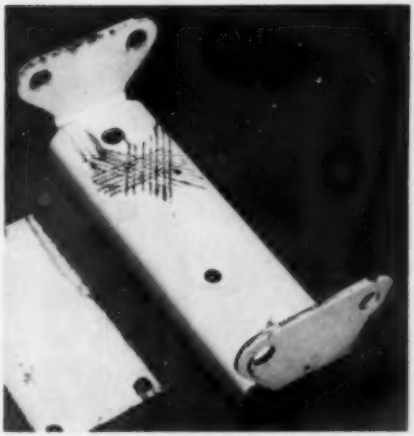
SEVERE salt spray corrosion tests, conducted on epoxy paint by the manufacturer of Dana Hull-Gard boat trailers, indicate that epoxy finishes are excellent for resisting rust, flaking, weathering and scuffing.

The epoxy finish tested by Parish Pressed Steel, a division of Dana Corp.,* is similar to formulations used by boating and outdoor sportsmen to protect trailers, boats, and gear in heavy use under marine conditions. Epoxies have a tough, resilient surface which resists the scuffs and scratches which open the way to rust. The particular finish tested was specially formulated for Dana Hull-Gard boat trailers by a paint manufacturer in Cleveland, Ohio.

In tests described as "unusually severe," test panels and trailer components of hot-rolled and cold-rolled steel were exposed to a blown fog with 20% salt content for 144 hours in a totally-enclosed 100% humidity chamber. Unprotected metal in this test is completely corroded away within 24 hours. The 144-hour exposure is equivalent to hundreds of hours of normal use.

Superior bonding to metal surfaces was seen in tests where the paint was scratched or scored down to the surface of the metal before salt-spray exposure (see illustration). Epoxy finish on Hull-Gard components did not chip off along the scratches, even when the scoring was cross-hatched.

Metal protected by a single coat of epoxy showed considerably less corrosion near the scratches than metal with a primer coat and second coat of conventional alkyd and other enamels. This effect was especially evident when the epoxy was applied after cleaning the metal with preparations leaving a light chemical film which penetrated the epoxy and bonded tightly to the metal. Without the chemical film now being used on the Hull-Gard production line, water entered the broken paint surface and crept under the paint as far as ½-in. out from the scratch marks. Water creep loosens the paint and increases rust.



Salt spray corrosion test pieces show rust-resistance of epoxy paint. Discolored areas are not corroded but stained by dissolved rust washed out of small corroded areas. The U-shaped roller bracket was scored in cross-hatch pattern to test the bonding of the epoxy coating. Finish remained on the metal without flaking off at interstices of scratches, protecting surface through 144 hours of salt-spray exposure.

Surface scratches and breaks are a major cause of rust in trailers during use. Touching up the finish as soon as it is marred will prolong trailer life and preserve good appearance.

Another test indicated the benefits of keeping trailers clean. An epoxy-coated test panel was exposed on a factory roof for 51 weeks. The exposed side of the panel, where some dirt is carried off by rains, showed

[*Continued on page 94*]

*Reading, Pennsylvania.

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sc aromatic solvents

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Among many desirable properties, they offer a wide variation in dry times and solvencies which give them unusual versatility in your formulations. Uniformity from initial test to production is absolutely assured because SC Aromatic Solvents always start with the identical crude. Each run is carefully inspected through numerous quality-control check points until

specific recommendations—SC Aromatic

numerous quality-control check points until

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properties of SC aromatic solvents

PRODUCT	Initial °F.	Dry °F.	Dry °C.	Flash Point °F. (Closed Cup)	Speed Evap. Min.	Kauri Butanol Value	Aniline Point °F.	Specific Gravity @ 60°F.	Lbs. Per Gal. @ 60°F.	Aromatic Equivalent Content
SC Solvent #1	211	240	116	30	2.5	86.4	+ 1	.8259	6.88	74%
SC Solvent #1-A	202	235	113	25	2.5	67	+48	.8003	6.66	52%
SC Solvent #2	270	308	153	81	14.0	80	— 2	.8418	7.01	76%
SC Solvent #2-B	277	370	188	81	21.5	75	+12	.8388	6.99	68%
SC Solvent #3	356	400	204	135	64.0	72	+24	.872	7.26	69%
SC Solvent #28	329	379	193	122	51.0	73	+14	.8597	7.16	74%
SC Solvent #100	321	351	177	115	21.0	93.2	—37	.8708	7.25	96%
SC Solvent #150	369	412*	211*	152	98.0	91.8	—26	.8899	7.41	96%
SC Solvent #450	450	588*	309*	212	750	73	+10	.9279	7.73	

*End Point

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Kansas City, Missouri Solvents & Chemicals Co., CH 1-3223
La Crosse, Wisconsin Solvents & Chemicals Co., LCRS 2-3011
Los Angeles, Central Solv. & Chem. Co., (Cal.), UN 4-7711 or SP 3-3471
Louisville, Dixie Solvents & Chemicals Co., EM 8-5828
Milwaukee, Wisconsin Solvents & Chemicals Co., GR 6-2630
New Orleans, Southern Solvents & Chemicals Corp., VE 3-4666
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St. Louis, Missouri Solvents & Chemicals Co., GA 1-3495
Toledo, Toledo Solvents & Chemicals Co., JE 6-3771
Windsor, Ontario, Western Solvents & Chemicals Ltd., CL 2-0933

For more data, circle 194 on colored card.

only a slight surface dulling, easily corrected by polishing. Paint on the under side, where contaminants accumulated, was appreciably more impaired.

Even if a trailer is not waxed and polished periodically it should definitely be washed with clean water, especially after salt water exposure. *—Beaumont, Heller & Sperling, Inc.*

Ultrasonic Cleaning

IN FIVE YEARS, ultrasonic cleaning has grown from a laboratory curiosity to a production-line method vital to the cleaning of many metal, glass, ceramic or plastic parts and assemblies.

Sorely needed by an increasingly cost-conscious, precision-minded industrial world, this progress has resulted from development of more dependable equipment and by a steady reduction in cost of this equipment. An even faster rate of advance will be achieved when more production personnel better understand the specifics of ultrasonic cleaning.

Some companies switch to ultrasonic cleaning because they are dissatisfied with conventional cleaning methods. Their reasons may include: 1) A desire to ultrasonically clean a new product right from the start; 2) ultrasonic cleaning was specified by the government in a defense contract; 3) need for faster cleaning; 4) need for more effective cleaning; 5) need for less expensive cleaning; 6) a desire to do all cleaning on the plant premises, and 7) the need to salvage previously disposable parts.

Properly applied and efficiently operated, ultrasonic cleaning is capable of meeting any one or all of the aforementioned needs. However, despite the progress being made in the field, three factors still condition the use of ultrasonic cleaning equipment: 1) parts to be cleaned must be immersed in a liquid; 2) generally, the entire volume of liquid must be supplied with ultrasonic energy; and 3) selection of the proper chemical cleaning agent can be all-important.

Sound waves, transmitted at high frequency into the tank containing a cleaning solution, create an activity known as cavitation; that is, the formation and subsequent collapse of minute vapor pockets which causes a scrubbing action on the surface of the object being cleaned. Cavitation serves to literally blast all foreign contaminants off the surface.

The high frequency power source is a considerable part of the cost of an ultrasonic system. . . .

Some cleaning jobs require only a generator and cleaning tank with rinsing done under the laboratory faucet. Another may call for an in-line conveyorized system consisting of a generator, a wash tank with recirculating filtration system, a drain area, a high flow rinse-tank with partial overflow and recirculation filtration system along with a final drain and dry area. Heaters can now be provided to maintain the baths at elevated temperatures for washing and rinsing.

Under consideration are manual or conveyorized lines with stations for conventional cleaning to remove gross contaminants, followed by ultrasonic wash and by one or more rinse stations. For very severe cleaning problems such as removal of hard carbon deposits or decontamination or radio active parts, pre-soak stations for conditioning of the soil may be required prior to ultrasonic removal in the final chemical bath.— *Westinghouse Electric Corp.*

Go slow on promises. Promise only what you can and will deliver. If you need time to check facts, take it.

QUESTIONS and ANSWERS

Die Cast Aluminum

We are interested in information covering the finishing of inboard-outboard, die-cast aluminum motors for boats.

We have not had any contact with this industry and are wondering if they go to the extent of anodizing, or do they have an alternate program for preparing the metal for salt water usage?—*V. P. Co.*

Anodizing is an excellent first step and possibly the best course. However, I have had excellent results with "Metal Etching Primer." The one I have in mind is a modified vinyl coating manufactured by a company in San Francisco. Many other manufacturers have a similar and comparable coating. An eastern concern calls its version "Grip Plato." One of my finisher friends tells me that "Grip Plate" is an excellent material; and an inquiry to other possible sources near you should be fruitful.

Now just a word regarding metal etching primer. It comes in several colors—black, white, gray, green and zinc chromate. It is mixed with the appropriate thinner, with a resulting pot life of several hours. In hot weather this may be less. There is phosphoric acid in the thinner. Adhesion is very good to ferrous metals, aluminum and zinc. It can be air dried or baked. As a primer under baked enamel, it is very good. Hiding with the zinc chromate is not too good. This material can be sprayed, brushed or dipped with a separate thinner for the different methods of application.

Another company's material comes in only one color, I believe. This is a grayish green, which leads me to believe that it contains zinc chromate.

Metal etching primer is a fairly well recognized term, so if you make inquiries for such an item you should be able to get a similar article. To answer the specific question: My suggestion would be to investigate metal etching primers, and use a suitable top coat to resist the subsequent salt water environment.—*C. R. Brown.*

Electro chemical anodizing is good, but costwise it is considerably higher than the Lyfanite chemical treatment. Aluminum parts can be first cleaned with buffered alkaline cleaning solutions followed by Lyfaniting.—*Mr. X.*

Painting Steel Pipe

In the painting of pipe, is it necessary to first remove the lacquer coating which has been applied at the mill?

We have never had any failures attributable to the fact that we paint over the mill-applied coating, but the question has been raised in regard to our formulation of painting standards for this work.

The coatings which we use on piping are conventional multi-pigment

primers and modified alkyd finish coats.—*A. Refining Co.*

Several factors would govern in this case—adhesion of the mill primer to the steel and then adhesion of the top coat or coats to the lacquer. If the lacquer prime coat maintains its integrity, then stripping would not seem to be necessary—always providing that the top coat did not adversely affect the lacquer. From the description of the top coat I would be unable to say.

If a first class job is indicated, then I would think the pipe should be cleaned and the appropriate protective coating be applied. This could be any one of many items—a "modified alkyd," an epoxy, a polyester or something else. It may be of interest to note that California Research Co., a subsidiary of Standard Oil of California, has done considerable research, development and field testing of ISO polyesters. Some of the results were amazing and quite gratifying. Some materials were reinforced with glass fibers; some were liquids and some were putty like. They were very resistant to a wide variety of outside influences. All of them were catalyzed.

Another suggestion would be an epoxy formulation. In any event, careful pre-cleaning is indicated. These are just two suggested fields of inquiry. In the case proposed, your experience seems to have been quite satisfactory, and so it is possible and even probable that the mill prime coat (lacquer) need not be removed. Surely a laboratory test should disclose this. Adhesion is essential; the lacquer must tolerate the later coating; then if the lacquer holds tight there should be no problem.—*C. R. Brown.*

The coating that covers the pipe when it leaves the mill is probably a bituminous or new asphaltic type of primer. This is the first coat of a protective coating system evolved by the American Pipe Institute and the American Petroleum Institute. Their aim is to provide a satisfactory protection for the pipe line, with emphasis on sub-surface protection.

For buried pipes, they recommended first a cold-applied asphaltic primer; followed by a series of alternate applications of hot asphalt and asphalt-saturated asbestos wrappings. So, since many pipes end up underground, this is probably the primer, applied at the mill.

An all-asphalt system is also very good protection for the above-ground installations, especially where corrosive fumes are encountered. However, asphaltic paints have very little resistance to solvents, which are usually encountered in a refinery. Therefore you must end up with a topcoating that has good resistance to solvents, which is true of your alkyd finish coats.

Removing the mill primer would be a costly job, and I doubt if anything would really be gained by doing it. You are following good finishing practice by using your own primer as a first coat, since primers are made to grip. It will also tend to protect any thin or abraided spots in the mill coat. There is no danger of lifting, and any failure of adhesion would have been evident by now.

Asphalts have some tendency to bleed into the top coats. This can be stopped or retarded by interspersing a coat of leafing aluminum, or incorporating some in the primer.

I would certainly include, in the specifications, the proviso that the pipe be inspected before painting; then spot in any thin or broken areas of the mill coating with your own primer. For re-painting, the identical system should be followed.—*Geo. Conrad.*

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Why Black Spots Appear On Vacuum Metallizing

For almost two years our company has been using vacuum metallized parts in the manufacture of decorative lighting fixtures. The results of same were entirely satisfactory, until two or three months ago. Some of the parts which we are receiving now have developed black spots after a period of a few weeks. These spots have a tendency to grow; they seem to start right at the base coat.

No change has been made in the basic materials which are being vacuum metallized, and the method of processing is also the same as before.

What steps would you recommend in order to discover just what went wrong?—*A. C. & Co., Ltd.*

The development of black spots is possibly an acid corrosion resulting from some contamination prior to the first or undercoat application, and which is not soluble in the cleaners used. The undercoats are very important in this process, but they must be applied to a completely clean surface.

In order to make any suggestions on this problem, it would be necessary to know many more of the details. The substrate material, the cleaning method and material, the type of undercoat used, etc.—all must be known first.

Perhaps you might consider the services of some independent consultant for a few days. A review of methods, materials, and equipment may be in order. This has always paid off well for companies in the past.—*E. A. Zahn.*

This sounds like a cleaning and/or coating problem. Ordinarily, when black spots appear on brass plated metal, cyanide is suspected. This is in the pores of the metal and, to a degree, can be removed. A good 3-stage degreaser removes enough so that there is no danger—for all practical purposes. The tendency of these spots to grow indicates that moisture is reaching the troublesome areas and a chemical action is taking place, thus destroying the vacuum plating.

Most of the larger companies who specialize in metal cleaning have excellent laboratories for their research. In turn, the finish material concerns that supply clear metal coatings have good laboratories. Since your problem doesn't seem to be unique or new, any good company specializing in cleaning—working with a company who supplies coatings—can offer technical service that will solve your problem without any research work. —*Harold Sherer.*

Why the Light Haze on Finished Furniture

We are presently plagued by a problem for which we have been unable to find an answer. A day or two after finishing our dining room pieces, some of them take on a white haze on the finished surfaces; this varies from a light haze to a deep frost. In most instances, wiping with a soft cloth removes the haze; in others it is necessary to rub it out, but the next day it is back again.

This situation prevails whether the finish is mahogany, Danish walnut or maple. We have made no basic change in our finishing process over the last several years. We use a non-grain-raising stain; wash coat; filler; lacquer sealer; and a final coat of urea-type varnish, dried in a closed room at 125° to 130° heat for four to six hours after quitting time, with fans moving the air. Humidity runs from 18% to 30% during the drying hours.

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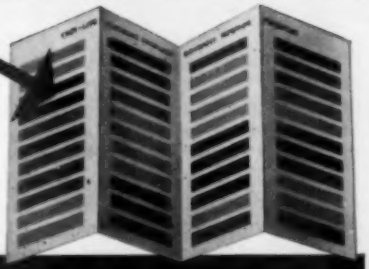

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and the condition exists whether or not the pieces have been rubbed. On occasions, we have been able to produce the condition on finished pieces after the piece has been touched or has been in contact with workers' hands.

We have found that by dampening a soft rag with "dry gas" and wiping the finished piece when this haze shows up—this treatment will dispel it. And once this treatment has been given, if the haze comes back on succeeding days, it is not as heavy as before; but it does come back. This has gone on for about 60 days, and we are unable to find the answer.—*F. S. T.*

I believe your trouble lies in the sealer coat. The drying schedule is very good and the low humidity would preclude inadequate drying; this eliminates the filler, in all probability.

It seems to me that the hazing mentioned is due to the stearate or some mineral soap incorporated in the sealer. These substances are used to make for easy sanding. The urea-type varnish that follows is probably picking up this stearate and it migrates to the surface, hence the haze. The stearate is soluble in white gasoline and can be easily wiped off, but after some hours more stearate comes to the surface. This will continue until all free stearate is removed.

In order to pin point the source of the trouble, I suggest finishing several test panels. Finish one or two panels with your present materials and methods. Then eliminate one material and finish one or two more test panels. Eliminate another material and finish other panels. Then try combinations with omissions. When you find those combinations which eliminate the haze and the one or possibly two that show the haze, then you should be able to say definitely where the trouble originates.

That would be my approach to the problem. Then I would call in my supplier and tell him what you think is the trouble and ask for a material that will meet your requirements.

Of course, the trouble can be any one or two of the items in the finishing schedule. This work could be done by either the user or the supplier; and it should not be too difficult to pin point the cause and then remedy it.

I assume, of course, that the compressed air you use for spraying is clean and dry. Perhaps you should make sure of this condition before starting out to finish any test panels. —*C. R. Brown.*

The description sounds as if it may be that of a stearate float; that is, the stearate or sanding agent used in the sealer is migrating into the varnish and finally coming to the top. In such cases VMP naphtha sometimes lessens the haze but seldom completely eliminates it. If this is the case then change the sealer to a non-stearated type.

You speak as if you are positive that no change has been made in materials, procedures or drying conditions. On the other hand you state that this condition began suddenly about 60 days ago and has been continuous. The two do not go hand in hand. Something must have changed. How about the amount of sealer? Is the varnish catalyst the same? What was (and is) the relative humidity in the finishing room where the furniture is stored before it is sprayed?

The remark you made about hand prints makes one suspicious of a slight moisture accumulating upon the surface. If this is true, then store the furniture in a drier place before spraying, or keep the windows closed in the storage area so the damp, outside air is less likely to accumulate on the furniture.—*Harold Sherer.*

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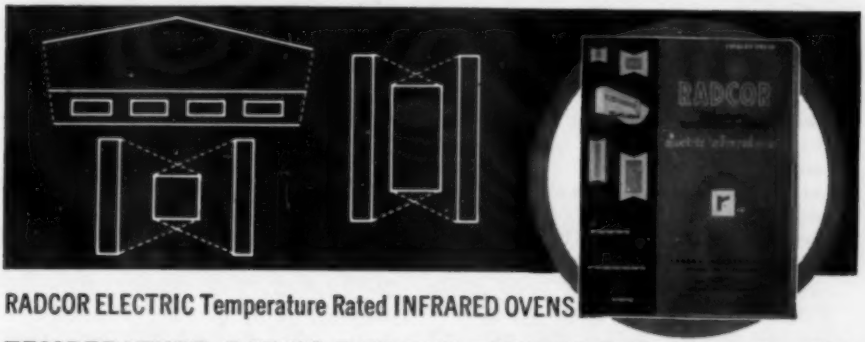

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Rubbing Procedure For Furniture

We have recently switched our finish from a lacquer to a synthetic system and are experiencing problems with our rubbing. This applies especially to our red mahogany color. The cabinets look acceptable immediately following the rubbing process, but after a week or two the finish develops a grayness which is more pronounced around the edges. We feel it is due to the bottoms of deep scratches not being polished by the compound but we find it difficult to establish this as a fact.

At present we are dry sanding with a stearate paper and "compounding" with burlap and compound. This is a fairly slow operation and we believe that it could be speeded up by using the right combination of sandpaper and compound. Do you have any specific recommendations as to an established method of rubbing synthetic varnish to a satin sheen.—*E. H. Co. (Canada).*

I believe you will find that the formaldehyde urea coating will usually react in this manner on darker woods, such as mahogany and walnut, but not on light colored woods such as maple or oak. Some manufacturers here in the states have had the same experience.

The only suggestion I could make would be to use the slowest naphtha you can find and mix it half and half with good rubbing lubricant (which leaves no scum on the surface). Then start rubbing with No. 400 wet-or-dry sandpaper on your portable rubbing machine, and finish with No. 600 wet-or-dry sandpaper.

Clean the surface thoroughly and then polish with a high speed buffing wheel (portable); you will probably have to do a lot of polishing. Even with this procedure you may get some dulling, but I understand that this has given the best results on this type of coating. It is important to use the No. 600 paper to finish with, to remove as many scratches as possible. The plain, slow naphtha will cut faster, but it is more likely to scratch easily; that is the reason for mixing it with a good rubbing lubricant.—*P. C. Bardin.*

In regard to rubbing and polishing synthetic varnish, we would suggest the following procedures be used:

1) Rub with No. 360 wet-or-dry abrasive paper and a fast cutting Anti-Haze oil.*

2) Rub with 400 paper and Anti-Haze oil.

3) Rub with 500 wet-or-dry sandpaper and Anti-Haze oil.

4) Rub with fine nylon abrasive cloth and Anti-Haze oil. The nylon abrasive cloth can be secured from any of the major abrasive companies such as Carborundum, Minnesota Mining or Behr-Manning.

5) After the grease is cleaned off the surface with a naphtha or mild soap solution and water, the surface should be buffed, using an Amcor pad on a 7250-rpm. heavy-duty buffing wheel, and using a machine buffing compound which can be secured from any of the abrasive people.

6) Where satin finishes are desired, the surface can be cleaned with a mild soap solution; then Anti-Haze polish can be applied.

7) Where a high sheen is desired the surface can be buffed the second time with a lambs wool buffing wheel, using a fine buffing rouge. After the buffing is completed, the surface can be cleaned with a mild soap solution and water. After the surface has been wiped dry, then a wax or a high gloss no-haze polish can be applied.—*H. W. Chester.*

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*Name of supplier on request.

Fast Dry For Stacking; Hot Spray Problem

IN ONE manufacturing plant recently the requirements called for a hot spray lacquer to dry hard for stacking with a 2-minute heating cycle of 125° F. Actually, in some cases, the heat never reached 125° F., nor was the time two minutes. A lacquer that finally met the requirements was one containing fast evaporating solvents. Since hot spray was involved, this feature made the situation complicated. Such solvents as acetone or methyl ethyl ketone are very fast for evaporation, but they can cause severe bubbling in a hot spray application. To solve the original problem, a series of compromises had to be worked out. Delivery rates to the four automatic guns on the line had to be cut to 1½-pints per gun per minute to avoid bubbling.

All went well for some months. Then one day the coating manufacturer received a complaint that the lacquer was building up on the tips of spray guns and clogging. Investigation of the setup showed that instead of four guns at a delivery rate of 1½-pints per minute each, only two guns were now being used at a delivery rate of nearly four pints per minute. When one considers that for most operations a delivery rate of 2 to 2½-pints per minute is a maximum, this new high figure seemed unbelievable. It was easy to see why clogging occurred.

The question then arose: Which feature

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was most desirable, high delivery rate or fast stacking time? Again a system of compromises came into play. By eliminating the fast dry required for stacking, and by changing to the use of racks, it was possible to deliver three pints per minute and again use four guns in the automatic spray setup.

By compromising on each of the items, the high production schedules were met. The manufacturer could have met any single requirement with his lacquer. Possibly by decreasing the quality of the lacquer ingredients he could have met the problem successfully. However, maintaining a high quality was still an important aspect and one that had to be retained. There could be no compromise.

This is an excellent example of what may be necessary at any given time. It was impossible to continue to get the fast rate of drying and yet maintain the high delivery rate of material to spray guns. Only after compromising could the problem be solved.—*Norman.*

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Technical Service Helps Both User and Supplier

PROBLEMS! In the industrial paint finishing field they crop up constantly. On many occasions, when something comes up that can be cleared easily, the paint salesman has probably enough experience to provide the necessary service.

Sometimes a paint manufacturer receives complaints that require close contact between the paint laboratory and production, so that results in one place can be duplicated in the other.

Many of the problems that develop in the field of industrial paint finishing are in paint application. This doesn't mean that the finisher or his methods are necessarily wrong; perhaps the finish has not been modified to meet that shop's conditions.

For example, if a bake enamel is formulated to cure at 300° F. for 15 minutes in the laboratory, it may not cure if placed in a factory oven set at 300° F. for 15 minutes — if the 300°F. doesn't develop until about the 13th minute of baking. These conditions must be evaluated by the trouble shooter on his call. Production requirements may not permit longer periods in the oven to give the full 15 minutes of baking at 300° F. If so, then a modification of the coating is indicated.

Technical service is a two-way street. Nothing could be worse than to have a chemist or technical man, with pre-formed ideas, meet a finisher who is convinced that the paint is "no good." Such a contact may end

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up by the finish user changing suppliers and the chemist going back to his base with a report that the finisher doesn't know what he is doing. Each individual feels that he has vindicated himself at the expense of the other, but this hasn't solved the problem.

It is costly for a paint manufacturer to send a chemist on a service call. On the other hand it is also costly for the finish user to be stopped in production. Here is where a cooperative effort is needed. Both the chemist and finisher should join forces to find a workable solution to the problem. Technical service then becomes a valuable feature for users of finishing materials—as well as for the supplier of materials.—*Gaynes.*

Take time to be friendly with your associates in the company. It pays.

Why Chemist Failed as Finish Supervisor

WHEN SOME large companies look for a talented man to supervise their finishing departments, there is one reference on an applicant's resume that always seems to carry a lot of weight with the prospective employer. That is the designation, Paint Chemist.

Because this idea seems to be so universal there must be some justification for reasoning that, "because a man is familiar with the formulating of paints, he must also be a master of paint application." The fallacy of such reasoning has been proved repeatedly by cold facts. Many excellent paint chemists have tried to supervise production finishing, but very few have succeeded.

I am not referring to working in an industrial paint control laboratory.

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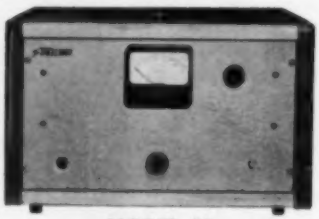

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That is a natural for the chemist. I refer to assuming supervision and responsibility for product finishing — when the chemist has had no background experience in such work. Often, the results of such mis-mating the man with the job can be very unpleasant for all concerned.

Recently a very enticing ad appeared in the newspapers for a painting supervisor. The advertiser was consolidating two branches and was planning a new and sizable finishing plant. Since the firm had always subcontracted all of its painting, none of its old personnel had much knowledge of finishing. Obviously the company needed more than a foreman; someone had to plan and expedite the entire project. Their ad pulled a heavy response, including several capable and experienced men.

One applicant was a young paint chemist—employed but dissatisfied with the slow but sure promotion policy of his current employer. His sole asset was a formulating knowledge of the paints the company would use. Ignored was the fact that this man had never seen production finishing at close range. He had never bossed a man in his life; his spraying experience had been limited to handling 6x10-in. lab. panels. Yet, not only was he offered the job; the management begged him to accept it and to start immediately. And, because the salary was so tempting, he took the

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chance—quitting his old job without giving his employer any notice.

Almost immediately that poor fellow found himself in a world as strange as on another planet. A thousand questions and problems quickly appeared for which he could find not a solitary answer. Three weeks later he was out of a job. Unable to return to his former job, his abrupt departure had even cost him a good reference.

Such heartaches could be eased by a little more candid examination by both principals. Certainly, some chemical knowledge is not a handicap for supervising a finishing job. In fact, a chemist who does a considerable amount of trouble-shooting with the salesmen has a wonderful chance to observe finishing operations in every type of plant. If he is blessed with a retentive mind or makes frequent notes in a notebook, and has the ability to sift the good from the bad, that man is an exception to the rule.

Most of the really good chemists are too highly prized by their employer to be easily tempted.—*C. C. C.*

Good management today requires that the cause of undesirable employe attitudes be determined—and steps taken to find a solution.

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Pilot Setup Reveals More About Flow Coating

IMPORTANT experiments in low-pressure flow coating are revealing new facts about this method of paint application. The experiments are being conducted by an appliance manufacturer in a pilot installation which is capable of simulating a variety of production conditions.

The pilot flow coater has just about every control device you might think of. Viscosity of the material at different temperatures can be kept uniform through the use of a refrigerating unit and heat exchange, both thermostatically controlled. Both the temperature and relative humidity in the solvent vapor drain area (through which wet coated products travel to drain before they reach the bake oven) can be accurately controlled. The volume of air exhausted and the volume of filtered fresh air for replacement can be controlled within close limits. Exhaust and intake ducts are fitted with adjustable dampers to control air conditions in the drain area.

Here is something the personnel has learned from this pilot installation: During the hot summer months the temperature of air inside the solvent drain area averages 10° higher than the room temperature. No authentic figures are available for temperatures inside the solvent vapor drain area during the cold months. This rise in temperature in the area is due directly to heat losses from the oven, plus indirect heat from the

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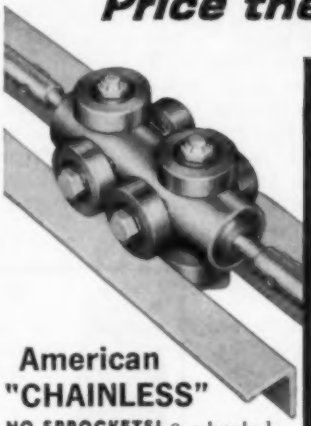

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power washer and dry-off oven which, in many cases, are near the flow coater.

Let us assume that quality standards indicate the use of a synthetic enamel at a viscosity of 30 seconds at 85° F., as measured in a No. 2 Zahn cup, and that this viscosity is closely maintained at all times by means of an automatic viscosimeter. The temperature of the enamel is also closely maintained at 85° F., by a thermostatically controlled refrigerating unit. We will assume that these standards have been established, based on the use of a solvent vapor drain area that has no temperature control. Coated parts travel through the drain tunnel for a total of 20 minutes.

During the first 16 minutes that wet coated parts are in the drain tunnel, practically all of the excess paint has drained off. In the remaining four minutes, the coated parts are really passing through the entering vestibule to the oven. This could well be classified as the final flash-off period, wherein any remaining solvent vapors evaporate before the coated parts enter the oven.

Now if the plant temperature in this area is 85° to 95° F. (during the hot months) the temperature in the solvent vapor drain area will be 95° to 105° F., and even greater as the parts approach the entrance to the oven.

Tests have proved that by using thermostatically controlled refrigeration to cool the replacement air that is forced into the solvent vapor drain area, it is possible to maintain an air temperature of 85° F. in the tunnel. When this is done, it will be possible to maintain a useful solvent vapor balance, with reduced solvent losses.

All quality standards are determined by actual laboratory tests—not upon mere visual examination and guess work. A reduction in the amount of solvent added to the enamel has no effect on the solvent vapor saturation in the drain area, as required for correct drainage within equal time limits. However a reduction in the solvent used does represent an important saving.

The experiments conducted on this closely controlled pilot installation are a real contribution to the advancement of knowledge in flow coating for all finishing personnel. More information about what is discovered here will be made later.

IDEAL TACK RAGS
FOR A PERFECT FINISH
Bulk, Bagged and Rolls
IDEAL CHEMICAL COMPANY
1499 Dean Drive
South Euclid 21, Ohio

For more data, circle 227 on colored card.

RECOVER your Paint Overspray

• REPROCESSED in our plant to conform to its original specification, in both physical and chemical properties, paint waste overspray or sludge can be used again in regular production at considerable savings. Our more than 21 years' experience is customers' guarantee of satisfaction.

PRIMERS—WHITES—COLORS—

• Write for complete details!

{ Mixed color sludges can be converted to primers. }

W. C. RICHARDS CO., 3108 W. Vermont St., Blue Island, Ill.
California Plant: 401 Julianna, Anaheim, Cal.

For more data, circle 207 on colored card.

Infrared Bakes Paint on Intricate Shapes Too

DID YOU KNOW that it is possible to use radiant heat to bake the finish on parts and products that have intricate contours? Some people seem to believe that if a product is not flat, round, square or rectangular, the applied coating cannot be baked by infrared rays. This is not so. With correct engineering and a correct placing of radiant heat sources, aided by the use of well placed reflectors, a paint coating can be baked on very intricate contours.

I visited a plant where paint on the intricate contours of air-cooled gasoline engines was baked by radiant heat. An especially designed oven, with a liberal use of reflectors, plus two different length hooks by which engine parts are suspended, makes this possible.

In some models a variation in baking temperature is required because of certain plastic components. To solve this, the engineers routed three conveyor lines through the oven—one on each side and one down the center. Parts that require the lower temperature travel on the middle conveyor where there are no top and bottom reflectors. The paint used on these models is formulated to bake at a lower heat. All parts rotate as they travel through the oven.

There is also the possibility of combining infrared rays and convected heat in certain types of ovens to bake the finish on metal products. It will pay you to look into these facts.

PRACTICAL HOT SPRAY

THE HEATED CUP

This new paint heater fills the need for a lightweight, compact, portable unit. It is available in a variety of sizes with screw-type and snap-lock tops. Seven (7) models to choose from . . . . to fit your type gun—½-pint cup to two (2) quart pressure units—priced from $37.00 to $60.00. Send for circular showing models and prices.

REGIONAL SALES OFFICES

Graves Spray Supply
Chicago 44, Illinois

General Spray Equipment Co.
Needham 92, Mass.

Corrosion & Finishing Engineers
St. Louis 4, Missouri

Empire Industrial Supply Corp.
Buffalo 2, New York

Empire Industrial Supply Corp.
Jamestown, New York

Mutual Electric & Machine Co.
New York, New York

Keystone Spray Engineering Co.
Philadelphia, Pennsylvania

Stevenson Industries, Inc.
Seattle, Washington

PRACTICAL CUP HEATER, INC.

1395 Kenmore Blvd., Akron 14, Ohio

For more data, circle 208 on colored card.

● SUPPLIES
● MATERIALS
● EQUIPMENT

Portable Electric Infrared Panels by Radcor, Inc.

New electric infrared portable heat panels that can be formed into any size paint baking or curing oven design, have been introduced by Radcor, Inc., Bradner, Ohio, a subsidiary of Edwin L. Wiegand Co.

Versatile in application, these infrared panels can give results comparable to those obtained by custom-made process ovens. They are offered in a variety of widths and heights with the top sections hinged for inclining in an arc to form half an oven section. By placing similar units opposite one another, an oven of any size can be formed by merely rolling them into position and inclining each bank of units as desired.

The panels can be obtained in four different reflector wattages from 125 to 500 watts, and heat sources of Chromalox Metarays or G-30 glass lamps. These heat sources have 12-in. square anodized aluminum reflectors for uniformity of radiation at distances of 10-in. or more. They are mounted in die-formed pressed steel banks of 4, 6 and 8-ft. widths. A toggle switch controls each reflector bank.

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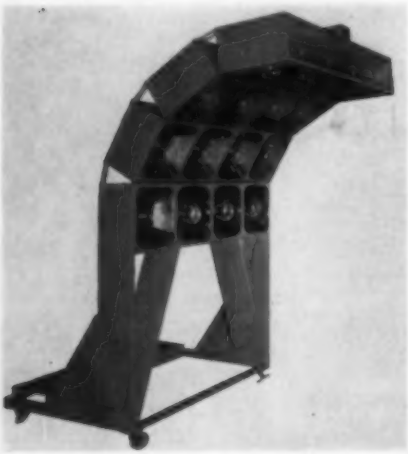


Infrared heat panels in different sizes.

Gyromat ULPE Air Spray System

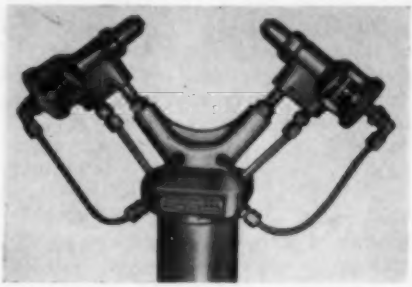
An entirely new principle in air atomization, said to effect remarkable improvements and economies in electrostatic spray application, has been developed by Gyromat Corp., Kings Highway Cut-Off, Fairfield, Conn.

A major feature of the system is that it is easily adapted to automation and programming, as well as to reciprocating operation and part-tracking or contour spraying.

Called the Gyromat Ultra Low-Pressure Electrostatic Oscillating Fan Air Spray System (ULPE), this new principle and associated equipment give excellent coverage and material efficiencies. "Wrap-around," deposition, and penetration are reported to be outstanding.

The Gyromat system now makes it

practical to atomize coating material at feed rates in the order of 230-cc/min. with atomizing air pressures in the order of 4 to 6-psi. and controllable particple velocities as low as 130 to 150-fpm. at 3 to 3.5-cfm.



Two atomizing nozzles mounted so their spray fans converge and intercept . . . .

The system employs a unique type of sprayhead, normally comprising two novel atomizing nozzles mounted so that their spray fans converge and intercept at a predetermined point and angle, producing a single outstandingly effective and reliable pattern. Although the sprayhead remains stationary, the spray fan can be oscillated under controlled conditions, producing a uniform fan intercept of 18-in. at 11-in. from the gun. The air used in atomizing and oscillating also establishes the working fan. No other air is used. Guns can be automatically triggered or skip-sprayed precisely.

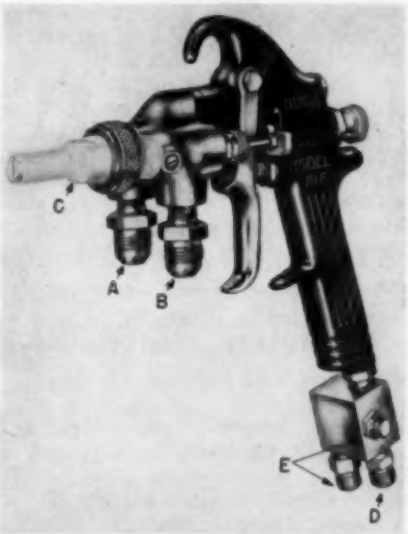
The unusual nozzles eject a thin, easily atomized annular film of coating material from a sharp annular edge. Because of the resulting highly efficient atomization, superimposition of high voltage imparts unusually high and uniform electrostatic charges to the air-atomized spray particles, resulting in excellent deposition, penetration, and "wrap-around."

For more data, circle 2 on colored card.

Binks 2-Component Spray Gun

A new 2-component spray gun has just been introduced by Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Ill. The gun, called the Model 18F spray gun, offers the merits of internal mixing. It handles low viscosity polyurethane foams (2000-CPS or less) and polyester resin systems. The 18F gun will spray or spray-pour these materials. In this latter usage, air pressure is reduced to approximately 10 to 15-psi. at the spray-pour adapter fitted to the head of the gun, enabling the operator to check visually the texture and consistency of the foam being produced.

The gun sprays up to 5-lbs. per minute of foam mixtures with a 1:1 to 3:1 ratio, and spray-pours up to



The gun is highly reliable for the spray or spray-pour application of low viscosity polyurethane foams and polyester resin systems. *A* and *B* are inlet connections for two resin components. *C* is the mixing nozzle. *D* is the inlet connection for air. *E*, solvent flush line and control valve.

12-lbs. per minute of foam mixtures with a 1:1 to 1½:1 ratio.

The 18F is designed for use with the Binks Model B Formulator proportioning unit. This unit meters and pumps resin and catalyst materials through separate hoses to the spray gun, where they are brought into contact, mixed, and sprayed. The Formulator B has a proportioning accuracy of plus or minus 0.5% continuing per pump.

Resin and catalyst are admitted to the mixing chamber of the gun when the trigger is pulled back. At the same time, air pressure (75-psi. for spraying, 10 to 15 for spray-pouring) is admitted into the chamber where the air blends the two materials, and discharges them a fraction of a second later.

A continuous air bleed keeps the mixing nozzle from plugging up during normal spraying, which eliminates the need for intermittent solvent flushing. A supplementary solvent flush system is also provided, so that the gun can be flushed when spraying will be interrupted for any length of time. The time will be dictated by the reaction time of the materials being sprayed.

For more data, circle 3 on colored card.

New ADM Urethane Vehicle

The Resin Department of Archer-Daniels-Midland Co. offers a new moisture-curing urethane vehicle, Arothane 156, for clear finishes requiring high resistance to heavy foot traffic, impact, weather and chemicals.

Uses of Arothane 156-based finishes include floor varnishes, marine coatings and varnishes, furniture coatings, chemical resistant coatings, ski finishes and other wood and metal applications demanding very high performance.

For more data, circle 4 on colored card.

New Aro 5-Gallon Airless Spray System

A portable airless spray painting system that fits all 5-gallon paint containers is now offered by the Aro Equipment Corp., Industrial Division, Bryan, Ohio. The new system, called Hydra-Coat "5," will save on labor and materials, when used in place of conventional methods.

Besides important savings in labor and material costs, Aro's new Hydra-Coat "5" is said to improve the quality of finish by virtually eliminating fog, overspray and material "bounce-back"—and enabling the operator to apply the finish with pin-point accuracy.

The new Hydra-Coat "5" Airless Spray System can be used for spraying primers, lacquers, enamels, stains and varnishes on a wide variety of interior and exterior work, including short run production finishing, maintenance, contract painting and structural steel. Hydra-Coat "5" is completely sealed against dirt and

Offered in two models—with accessories.

other contamination, and is equipped with a powerful air motor for operation with any 10½-hp. compressor.

The drum cover fastens onto any 5-gallon paint container by a new, positive swivel clamping technique developed by Aro; it is said to offer absolute safety in operation. A heavy-duty carrying handle is provided for easy portability.

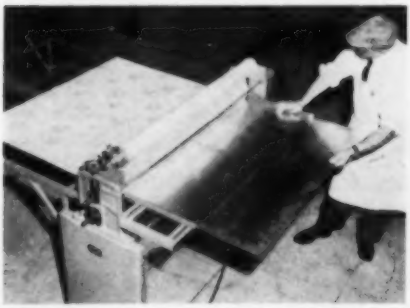
For more data, circle 5 on colored card.

Applies Protective Pressure Paper to Polished Metal

The Walco Model 51-C-1M is a power applicator for applying protective pressure sensitive paper to polished flat surfaces such as stainless steel, aluminum, pre-finished metal, plastic sheets, etc., that require protection during cutting, stamping, forming and fabricating operations.

This re-designed roller machine has such features as a roll and aligning disc, and brakes on either end of the roll for tension to remove the possibility of any wrinkles. Infeed and take-off conveyors are available where required.

The unit is offered in widths of from 36 to 72-in. Precision adjustable rubber pressure rolls give perfect pressure control. A gentle firm, rub-



Power machine applies pressure sensitive protective paper to polished sheet metal.

Actual in-use tests in customers' plants and by an independent testing laboratory (names on request) prove savings up to ⅓ of total paint bill. Best of all, finish quality is improved and the required mil thickness fully maintained.

*H.S.R. (HI-SOL Reducer) System uses a unique solvent blend formulated to work at low air pressure which puts more paint on the product.

Write for FREE sample or a No-Risk Trial Drum of HI-SOL Enamel Reducer.

POTTER Paint Co. Inc.
Cortland 1, New York
or Cambridge City 1, Indiana
Write to your nearest location.

For more data, circle 228 on colored card.

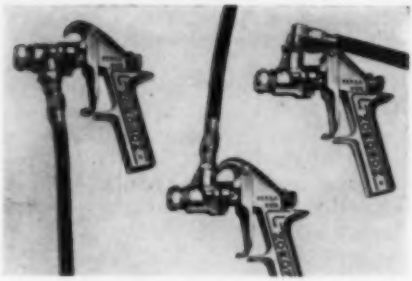
ber roller pressure feeds the sensitive adhesive paper to polished surfaces quickly, evenly, properly, and at a great reduction in production costs. The machine is driven by a ¼-hp. electric motor.

A product of L. R. Wallace & Co., 172 N. Vernon Ave., Pasadena, Calif.
For more data, circle 6 on colored card.

Versa Gun Available With 3 Types of Hose Connections

The Nordson Versa Gun, an improved airless spray gun, which was announced last spring, is now available with three types hose connections as shown in the photograph. The "overhead" hose position is often used in connection with a spring type support mounted from the ceiling. This type installation helps reduce operator fatigue in many installations.

The standard "down from the floor" hose connection is the most popular of all three and is generally the most useful. The "over the arm" connection with swivel action meets many special requirements such as painting furniture interiors, etc. The Versa Gun weighs only 16-oz. and because of its good balance, is easy to use in any of the three positions illustrated.
For more data, circle 7 on colored card.



Illustrating different positions for hose connection—whichever is handiest for the operator, depending on what he is spraying.

"TOMORROW'S Products Tested TODAY"

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE, INC.
EST. 1931
4301 N. W. 7th St. Miami 44, Fla.
® Reg. U. S. Pat. Off.

For more data, circle 229 on colored card.

Fast Cure Organic Coating

Duracron enamels developed at Pittsburgh Plate Glass Co., Springdale Research Center, can be baked or cured in 24 seconds using specially designed heat equipment.

These organic coatings are cured rapidly by exposure to far infrared

PROTECT LUNGS *against*
PAINT SPRAY – DUST – FUMES

DUPOR No. 4 RESPIRATOR has big double filters for easy breathing and greatest filtration! Soft rubber face mask gives airtight fit. Patented DUPOR valves bring in clean air—throw off breathed air! Weight 4 oz. Economical! Costs only **$2.25** postpaid. Order Now!

H. S. COVER CO., Dept. 1210, South Bend 14, Ind.

For more data, circle 209 on colored card.

radiation, the more efficient waves of infrared spectrum. The Duracron coatings, which are thermo-set acrylic polymers, are of particular interest in fast curing since they have the ability to accept intense radiation without sacrifice to their excellent properties.

Several equipment types have made possible the direct conversion of gaseous fuel to far infrared energy. One specific type has been used at the Research Center which catalytically controls the radiant emission of infrared wave lengths.

Emission source temperatures can be controlled between limits of 800° to 1500° F. A Duracron coating can be rapidly cured at the surface exposed to the infrared waves. It is not necessary to bring the mass of the coated object to the proper metal temperature before a cure of the film is accomplished. Under normal conditions the enamel would have to be cured for 30 minutes at 350° F. in an enclosed gas fired convection oven.

Pittsburgh Plate Glass Co., Industrial Finishes, 1 Gateway Center, Pittsburgh 22, Pennsylvania.

For more data, circle 8 on colored card.

It Automatically Lubricates Overhead Chain Conveyors

Here is an automatic lubricator that utilizes a new advanced design which places the oil where it is needed. This guarantees cleanliness in operation. The lubricant is deposited on the top of the pin on the side that the chain link is riding against. Gravity brings the lubricant down in between the pin and the link where the lubricant can then do its work.

This air-operated lubricator has a caterpillar type chain driven by the conveyor chain. This actuates a group of oil dispensing nozzles which move in and out over the conveyor

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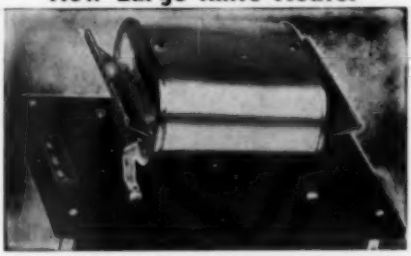
New Large Knife Heater



For certain operations requiring a larger (wider or thicker) tool or knife than the conventional patching knife, this new heavy duty heater will take a tool with a blade up to 3½-in. wide.

It is designed for continuous operation on production lines—rated 350 watts and can be furnished for 115-volts or 230-volts. Can also be furnished with a thermostat to 700° F.

OPAL THE OP-AL ELECTRIC AND MANUFACTURING COMPANY

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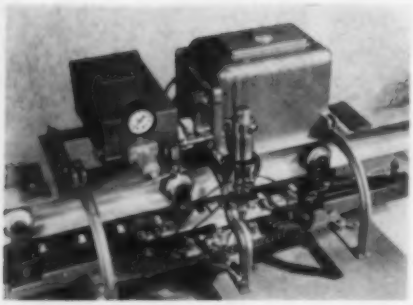

No drippage; uses any oil; fully automatic.

chain as well as along with it, without interference with the trolley brackets. When the nozzles are properly positioned over the chain pins, an air-operated pump dispenses an accurately metered amount of oil (about two drops) on the top of each pin. This is liquid oil and not a spray; all danger of drippage or spraying on work is eliminated. Stoppage of the conveyor in any position cannot cause continuous delivery of oil, as each metered amount has to be cycled separately.

The assembly holding the moving parts is suspended on pivots and, when in operation, it is held in engagement with the conveyor chain by the thrust from an air cylinder. Shutting off the air causes it to disengage and become completely inactive. Oilers are furnished with "on" and "off" control, operated either manually or by means of an electric timer wired to the conveyor drive control circuit. For operations requiring continuous oiling the manual control is suitable, but where intermittent oiling is required, the timer which engages and disengages the oiler automatically at any desired intervals, is recommended.

The first oiling of a dry chain usually results in a 30% decrease in load on the conveyor drive. Regular use of the oiler will greatly decrease the wear and maintenance on both chain and drives. A product of Opco Inc., 121 N. 120th St., Milwaukee 13, Wisc. **For more data, circle 9 on colored card.**

For more data, circle 232 on colored card.

Marks on Polyethylene. A new marking and decorating ink which can be used on treated or untreated polyethylene has been developed by Rubba, Inc., New York. This ink remains permanently flexible; it does not chip when flexed, and is excellent for use on other plastics where flexibility is important; can be used for decorating.

Chosen by 21 Coating Labs . . .

Steinemann *Pressure Curtain* **COATER**

Yes, 14 paint, 7 hot melt supplier, selected Steinemann for research and sales. The reason — more Steinemanns are in use than all others combined, and Steinemann operates with exclusive pressure curtain and gravity curtain. This lab versatility is significant. Now, Steinemann is even better — with complete redesigned lab and production machines.

GEORGE KOCH SONS, INC.
Steinemann Coater Division
Box 3784 Memphis 14, Tenn. Box 304 Evansville 4, Ind.

For more data, circle 210 on colored card.

Bake Finish For Aluminum; Flexible, Hard, Resistant

An entirely new and revolutionary baking finish for aluminum, Uni-Clad Formula AD, virtually eliminates special metal treatment, yet shows excellent adhesive and protective qualities. In many cases, only degreasing is required to insure a coating that is unaffected by salt, fog (5%) and humidity tests of over 2000 hours. Very hard, yet flexible, it won't chip or peel . . . . a stable, one-package system using low cost solvents for thinning.

Very good color and color retention. Available in clear or colors, from high gloss to flat. Similar performance on most metals. Samples are available. Universal Paint & Varnish, Inc., 7172 Northfield Road, Bedford, Ohio.

For more data, circle 10 on colored card.

Dow's New Immersion Treatment For Magnesium Alloy

Development of a stannate immersion treatment for protecting magnesium alloys from corrosion is announced by The Dow Metal Products Co., Division of The Dow Chemical Co., Midland, Mich. It has been designated Dow Chemical Treatment No. 23.

The new treatment, which is intended as a paint base rather than a final protective coating, offers several advantages over previously developed treatments such as Dow 7 and Dow 17.

No expensive electrical equipment is required.

Magnesium parts with steel attachments can be treated in one bath without masking the steel parts.

The stannate immersion treatment consists of the following steps: Precleaning with solvent degreaser and/

Add Solvent AUTOMATICALLY

in Flow Coating, Dipping and other Finishing Processes

With NORCROSS VISCOSITY CONTROL

Provides more accurate control by eliminating human error.

Improves uniformity of coating.

Reduces labor and material costs.

Increases operating efficiency by eliminating waste.

Write for Illustrated Bulletin

NORCROSS CORPORATION

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Tel: DEcatur 2-3410

Representatives in Principal Cities and Foreign Countries

For more data, circle 233 on colored card.

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SELF-CATALYZED COATING

- Withstands 24-hr. water-soak on wood.
- Mar-proof, scratch, alcohol, soap, detergent and chemical-resistant.
- Dries with lacquer speed.
- May be applied to metal, wood or composition materials.

Working sample will be sent on request.

Chemlite Paint & Lacquer Corp.

LODI, NEW JERSEY

Phones: N. Y.—WI 7-3410
N. J.—HU 7-5527

For more data, circle 234 on colored card.

or heavy-duty alkaline cleaner, cold-water rinse, hydrofluoric acid bath, cold-water rinse, immersion in stannate solution, cold-water rinse and hot-water rinse.

Paint adhesion to the stannate coating is excellent, according to Dow, when recommended wash primers and paint top-coatings are used.

The treatment was developed by Dow under a contract with the Detroit Ordnance District and is currently in limited production use. It is available for general laboratory evaluation by interested firms.

Dow is licensing U. S. commercial firms to use the process on a royalty-free basis and with no fee required for the license. Government contracts provide for free use of the process on government projects.

For more data, circle 11 on colored card.

Automatically Adds Solvent

A new bulletin No. V-1226 describes the basic Norcross Solvent Control for automatically adding solvent to correct viscosity for evaporation losses from coating materials, as they are being used. Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.

For more data, circle 22 on colored card.

DriQuik Portable Testing Oven

A versatile portable driQuik electric infrared testing oven has been introduced by the driQuik Division of the Dry Clime Lamp Corp., Greensburg, Ind. Designed for both laboratory and field service, it consists of two portable radiant panels and one portable control panel. Each panel is equipped with high wattage ceramic type infra-red generators. Each oven panel is mounted on a frame which may be pivoted from a vertical to a horizontal position. Each or both panels may be plugged into the temperature control assembly by which accurate temperature control is available when the equipment is being used for testing service.

The equipment is wired for 240 volts, single phase.

The portable radiant testing oven was originally designed primarily for use in laboratories of paint manufacturers, but it has a wide variety of other uses in product finish testing in the field. The oven testing equipment is designed to withstand the rough handling of being transported between plants.

For more data, circle 12 on colored card.

It consists of two portable radiant panels and one portable control panel.

New Buffing Compound Cleaner

Cowles Chemical Co., 12,000 Shaker Blvd., Cleveland 20, Ohio, offers a new compound for cleaning bar and liquid type buffing compounds from zinc-base die castings. Several months of production tests in different problem situations have shown "Buff-Off" to be an excellent solution to the many difficulties which have plagued die casting platers.

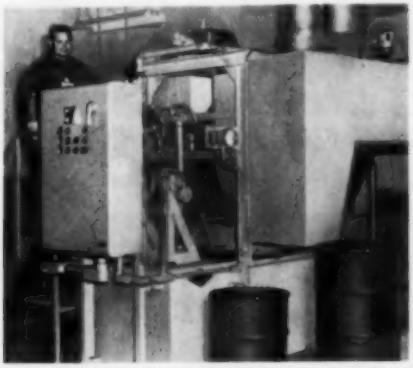
For more data, circle 13 on colored card.

Drum Washer Cleans Small Parts

The Alvey-Ferguson Co., 3131 Disney St., Cincinnati 9, Ohio, offers compact, batch-type drum washer. It has a capacity of 3-cu.ft. per batch and can be operated by one man.

Designed originally to clean new and reclaimed starter-drive components, manufacturers in many different fields are finding it excellent for cleaning a wide variety of small parts.

Parts, to be cleaned, enter the drum through a chute and are subjected to a high-pressure spray. During the washing cycle, the parts are gently tumbled by the helical spiral in the drum so that all surfaces are ex-



Cleans, rinses and dries small metal parts.

The New PEARL GLO

Synthetic Pearl Pigment
SUPERIOR TO NATURAL
at the Synthetic Price

TEST PEARL GLO (new synthetic *Patented essence), whether you spray, dip or incorporate, you'll find a saving in equipment & labor required. Use it on any sealed surface, plastic, metal, wood, leather, paper, etc. It may also be incorporated into Acrylic, Polyester, Vinyl, Polyethylene, etc. Gives a dazzling pearl finish at very low cost.

WRITE TODAY FOR A TRIAL SAMPLE OF PEARL GLO for a test run and full information. Specify application & choice of vehicle.

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Eastport,
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**Patent No. 2,807,858*

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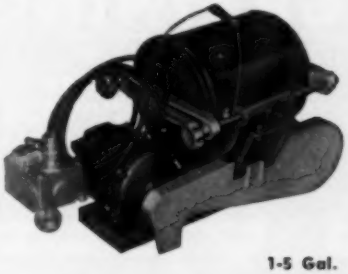

1-5 Gal. Capacity

Model 4 Bull Dog Shaker

Will condition to paint brushing consistesey in one to five gallon cans without opening the can. Time required is from two to thirty minutes depending on the paint formulation and the length of time it has been on the shelf. Simply pince the can in the saddle, tighten the end plates and flip the switch. Bull Dog will do the rest.

Grenier & Co., Inc.
13142 Rexford St., Blue Island, Illinois

For more data, circle 236 on colored card.

posed to cleaning action. Cleaning solution, oil, chips, and impurities are drained off through perforations in the drum. A pre-determined rinse cycle is then followed by a drying cycle. The entire sequence is controlled by an automatic timer that also unloads the drum automatically when the parts are thoroughly clean and dry.

For more data, circle 14 on colored card.

Shell Chemical's Epoxy Resins

The first epoxy resin which requires no curing agent or catalyst, Eponol 55, is one of three new products which the Plastics & Resins Division of Shell Chemical Co. exhibited at the Paint Industries Show at the Shoreham Hotel, Washington, D. C., November 1 to 4.

The other two are Epon 872, a semi-solid epoxy resin especially designed for use in preparing flexible surface coatings, and Epon Curing Agent H-3, a new member of Shell's family of latent room temperature curing agents.

Eponol 55 enables paint manufacturers to make and market one-package epoxy-type coatings with lacquer-type dry. By solvent evaporation alone, Eponol 55 forms a film that outperforms vinyl, chlorinated rubber, and nitrocellulose lacquers in many uses. Because of high hydroxyl functionality, Eponol 55 can also be crosslinked with urea, melamine, triazine or phenolic resins, anhydrides and diisocyanates. Shell Chemical Co., 50 W. 50th St., New York 20, N. Y.

For more data, circle 15 on colored card.

Chromate Conversion Coating

A new chromate conversion coating in dry powder form, for zinc and cadmium, that provides the high corrosion protection of olive drab, at less than half the cost, is fully described in Technical Data Sheet No. 130, a 4-page instruction sheet prepared by MacDermid, Inc., Waterbury, Conn., manufacturer of metal cleaning and finishing chemicals.

By varying immersion time, the desired amount of corrosion protection can be obtained. Color of the coating,

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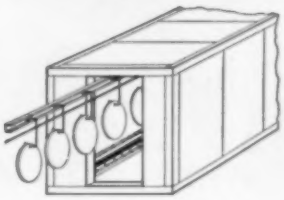

For more data, circle 211 on colored card.

which ranges from light brown through coppertone to dark brown, indicates the degree of corrosion protection. The darker the color, the higher the degree of corrosion protection obtained. It can be used as either a final finish or a paint base.

For more data, circle 16 on colored card.

Trolley Wheel With Lubricant Seal Closure

The Lube-Seal W-16 wheel, designed for use with the Bush-Lock Overhead Cable Conveyor and other types has been developed by The E. W. Buschman Co., 4477 Clifton Ave., Cincinnati 32, Ohio, for dust, paint, high temperature, wet or corrosive conditions. This wheel lubricated on

The Lube-Seal W-16 wheel for conveyors.

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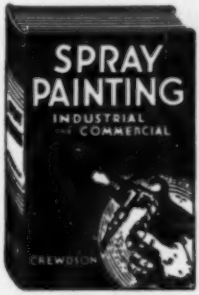

This new book covers the fundamental principles of spraying technique, together with the latest developments and practices of this craft. Covers common paint pigments, paint extenders, enamels, oil and spirit varnishes, shellac, lacquer, synthetics, all types of modern air guns, spraying technique, spraying standard materials, spraying defects, their cause and remedy, flock and suede finishes, striping and lettering, pearl lacquer finish, also automatic spraying, electrostatic spraying, agricultural spraying and automobile spraying. Ends with the sprayers' "Ten Commandments."

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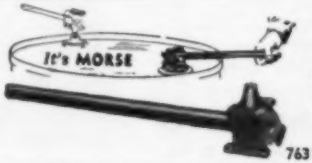

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ond surface depressions are to be filled and then wiped and polished.

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Literature on this fill and wipe machine will be sent to anyone addressing a request to Conforming Matrix Corp., 765 New York Ave., Toledo 11, Ohio.

For more data, circle 18 on colored card.

Methylene Chloride-S Developed by Dow

Development of a unique, stabilized methylene chloride is announced by The Dow Chemical Co., Midland, Mich. The product has particular advantage in aerosol-type pressure paints and in paint systems in contact with aluminum or combinations of aluminum with iron.

Methylene Chloride-S has a strong solvating effect on resins, non-flammability and low toxicity.

Methylene Chloride-S has special utility in pressurized paints because the specially designed inhibitor system reduces attack on aluminum, reduces catalytic reactions triggered by iron, and gives superior stability in solvent blends with toluene and a range of aromatic solvents.

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Manpro Vibratory Washer

Manpro Corp., 26,000 Capitol Ave., Detroit 39, Mich., has introduced a new vibratory washer. This equipment fulfills a need for automatic in-line washing of small parts on a continuous production basis. The subsonic vibratory spiral principle, long in use on Manpro Vibra Degreasers, permits maximum parts travel in a minimum of floor space. In one continuous operation, parts are washed, rinsed and dried. Production rates are from 1000 to 12,000-lbs. per hour, with minimum manpower and maintenance.

For more data, circle 20 on colored card.

Electric Infrared Heat Panels

Fannon Products Division of Hupp Corp., 3000 E. Woodbridge, Detroit 7, Mich., offers a new line of electric quartz infrared heating panels, elements and engineered oven assemblies for application in process heating.

Fannon quartz infrared elements are available in 22, 46 and 70-in. overall lengths, with wattage ratings from 500 to 1500 watts for 115 volt elements and 500 to 3500 watts for 230 volt elements. Special size elements are available upon request.

Heater panels are supplied for both front and back wire connections. Back wire connections are required when ambient temperature of the installation is over 400° F. Panels are made to accommodate one, two and four elements and are made in two, four and six foot lengths.

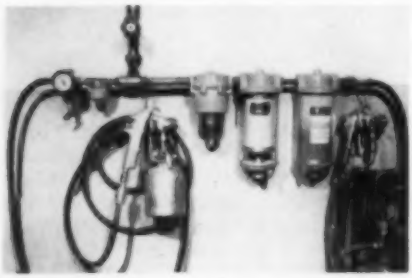
For more data, circle 21 on colored card.

Dehydrator in Air Line Solved Painting Trouble

IF YOU ARE having trouble in getting a smooth finish it may be due to faulty surface preparation, or perhaps it is the steel itself. These are the obvious places to look for the cause of such trouble.

One manufacturer put on a thorough investigation in an effort to solve the poor appearance of his paint finish. He tried the paint coating on all kinds of surfaces. The results were the same—poor appearance. The service representative of the paint supplier was called in. He checked with his laboratory and according to the formulation of both primer and top coat materials, there appeared to be no reason for the trouble. Finishing procedure, flash-off time, baking time and baking heat—none of these could be blamed.

All that remained was the compressed air used for spraying. The air lines had traps, moisture separators, filters and transformers. As a last resort they experimented by installing an air dehydrator positioned back of the moisture separator and oil filter. This solved the problem. The separator removes any *visible water* and the filter removes all traces of oil, while the desiccant (drying agent) in the dehydrator finishes the job of thoroughly cleaning and conditioning the air before it reaches the spray gun.



The dehydrator is at right, in compressed air line. Photo, courtesy of Wilkerson Corp.

The dehydrator has a transparent shell which contains a color-coded chart that shows the condition of the desiccant and indicates when it needs reactivating. This removes the possibility of any guess work.

Here was one of those cases where the trouble did not stem from an obvious cause. However, it proves that nearly every finishing problem can be solved if one looks long enough and far enough.

Practical Shop Uses for Flock Coating

WHERE IT IS the practice to place finished panels, cabinets or pieces of furniture on low work tables or on the top rails of "horses," those work table surfaces can be made safe for this service by being coated with flock. The resulting high-pile velvet-like surface will not harm finished surfaces.

Of course, eventually the flock surfaces will wear thin and bare. Before this occurs the surfaces can be cleaned, smoothed, and a new coating of adhesive and flock can be applied to restore the soft smooth surface.

Another use for flock is to provide a soft coating for the interiors of drawers in which cutting tools are kept in both portable and stationary tool cabinets. Also, in drawers used for temporary storage of spare spray gun parts. The flock coated surface will prevent any dulling of sharp tools which are often tossed in the drawer at random; and delicate repair parts for spray guns will not be damaged. Tools and parts can be picked up easier and more quickly from a flock coated surface than from a smooth metal surface.—*Bardin.*

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Use INDUSTRIAL FINISHING magazine's "Reader Service" return cards to obtain further information on products described and illustrated in the "Materials; Supplies; Equipment" section which precedes this page; also to receive further information on what manufacturers have to offer—literature, products, supplies, services, etc., as mentioned on the following pages.

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Industrial FINISHING

December, 1961, Issue

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RS-3 Model Ovens will fit the needs of large or small concerns at low cost. Available for either gas or electric heating, they are designed for aging, dehydrating, preheating, drying, curing and other production needs. Are precision-built and equipped with accurate indicating-type controls. Bulletin 203-5 ED free on request. Despatch Oven Co., 619 S. E. 8th St., Minneapolis 14, Minn.

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Wood Lacquers and clear and shaded synthetic coatings, texture enamels, aircraft finishes, clear metal finishes, thinners, dopes and chemical coatings are just a few of the many coatings by Randolph Products Co, Carlstadt, N. J.

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"Chainless" Conveyors by American MonoRail Co., 4th & Franklin Sts., Tipp City 6, Ohio, have no sprockets, 8-wheeled trolley rolls around curves. The in-line drive is ideal for in-the-floor tow-type, pallet or overhead installations. "Cable-Way" compact conveyors are also available. Catalog CD-B available upon request.

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Interlox Line of cleaning materials includes a product for every need, whether spray or immersion type cleaner is used, single or multiple-stage. Interior baths are long-lived and require less additions and control. Northwest Chemical Co., 9310 Roselawn, Detroit 4, Michigan.

For more data, circle 26 on colored card.

Kinetic-Kurtain Coater by Gasway Corp., 6463 N. Ravenswood Ave., Chicago 26, Ill., provides a precisely metered gravity curtain of material that gives an ultra-smooth coating film deposit at high speeds. Many standard paints and finishes can be applied. Booklet gives details, specifications and recommendations.

For more data, circle 27 on colored card.

Screen Process Industrial Lacquers, give a hard gloss finish, force-dries in seconds, air-dries in 20 to 40 minutes. Available in 11 colors, plus four transparencies. Naz-Dar IL lacquers can be used for silk screening glass, wood, metal, paper, cardboard and foil. Color cards and technical data sheet available. The Naz-Dar Co., Dept. IF-461 Milwaukee Ave., Chicago 10, Ill.

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Drum Plug Wrench; steel or bronze, fits 95% of plugs or bungs in steel drums. Morse Mfg. Co., Inc., 763 W. Manlius St., East Syracuse, New York.

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"Nacromer" Synthetic Pearl Essence adds sparkle, highlights and richness to an otherwise ordinary coating. Nacromer is compatible with most coating vehicles and can be applied to practically any material by the usual coating methods. 8-page Nacreous Pigment Handbook contains information on natural and synthetic pearl essence. The Mearl Corp., 41 East 42nd St., New York 17, N. Y.

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Multi-Color Wood Grain Printing, with Model MC-H158, gives a true-to-life appearance. This particular model prints two perfectly-registered colors simultaneously. Other models are available for every purpose. Hamant Tool Co., Inc., 502 Warren St., Dayton 9, Ohio.

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Aluminum Flake Powder, MD 7300 Super-Lustre is specially designed for aerosol spray products, graphic arts and industrial finishes where the utmost in metallic appearance is required. Has been thoroughly tested in standard production procedures to establish proven superiority in its properties and quality specifications. Metals Disintegrating Co., Dept. 3, Elizabeth B, New Jersey.

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Tack Cloth for Wiping Dust. It's available in different meshes, in envelopes, rolls or bulk. Lint free, wax free; no danger of spontaneous combustion. Bond Chemical Products Co., 2104 W. Fulton St., Chicago 12, Illinois.

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Water-Soluble Melaqua 600 Melamine-Acrylic Resin is non-flammable yet delivers high gloss, hard finish, resistance to weather and heat. Melamine resin makes Melaqua 600 hard and solvent-resistant. Acrylic polymer produces smoother films and cleaner, brighter colors. Melaqua 600 is the first of a new family of water-dispersed thermosetting industrial coating resins. American Cyanamid Co., Plastics & Resins Div'n., 30 Rockefeller Plaza, New York 20, N. Y.

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Guardsman Furniture Finishes give beauty to maple hard wood. Guardsman finish styling is eye-catching on the retail floor, long-lasting in customer satisfaction. Finishes available for all kinds of woods and type of finish. Grand Rapids Varnish Corp., Grand Rapids 2, Mich.

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High Velocity Dryer, by J. O. Ross Engineering, 730 Third Ave., New York 17, N. Y., makes maximum use of the hot drying air; has effective distribution, and impact is suited to the material being dried. Temperatures can be closely controlled. If you have a drying problem, and want a modern dryer, contact J. O. Ross for complete information.

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Steinemann Pressure Curtain Coater Operates with exclusive pressure curtain and gravity curtain. Pivotable heads give more of what you need most in a curtain coater. New Free brochure available. George Koch Sons, Inc., Steinemann Coating Division, Evansville 4, Ind.

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Industrial Finishes with eye-appeal and buy appeal, are formulated by Cook Paint & Varnish Co., Kansas City, Mo. Coatings for both inside and outside of cameras and projectors are a specialty.

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Industrial Finishes, specially formulated for your production line and products, give your products a salable appearance. For a perfect protective and decorative finish for your purpose, consult the Rockford Varnish Co., Rockford, Illinois.

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Compact Catalytic Combustion systems provide complete one-step fume elimination and valuable heat recovery for a wide range of chemical and industrial processes. Free brochure on heat recovery and air correction is available from Catalytic Combustion Corp., 4725 14th St., Detroit 8, Mich.

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"Red-Ray" Infra-red gas burners are effective, efficient and economical. Can be installed effectively and economically in your next dry-off and finishing ovens; backed by more than 20 years of experience. Complete information available. Red-Ray Mfg. Co., Inc., Cliff Lane, Cliffside Park, N. J.

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Metal Coatings for your standard requirements or for the solution to a unique problem, can be formulated in the modern research laboratories of Gordon Bartels Co, 2600 Harrison Ave., Rockford, Ill. Bartels Metal Decorating coatings have the consistent order-to-order uniformity. For metal decorating problems consult Gordon Bartels Co.

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Restore Paint to its original consistency without opening the container, whether in ¼-pint cans or in 55-gallon drums. Time required is only 2-minutes per gallon. Full information from Miracle Paint Rejuvenator Co., 128 E. 10th St., St. Paul.

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"Armorette" Textured Vinyl Finish can be applied at low baking temperature. Has good abrasion resistance and can be used on steel, aluminum, wood, reinforced polyester and pressed wood. Is available in a wide selection of gloss and colors, including metallic and non-metallic. Has resistance to salt spray, humidity, chemicals and scuffing. Does not require special equipment. Can be used both indoors and outdoors. John L. Armitage & Co., 245 Thomas St., Newark, New Jersey.

For more data, circle 44 on colored card.

Polystat Electrostatic Spray Enamels, lacquers, epoxies and thermoset acrylics are versatile and practical. Polystat comes in hammer, textured, metallic and smooth and is made to serve your use. Duralac Chemical Corp., 84 Lister Ave., Newark 5, N. J.

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Air-Replacement Units come complete with housings, fans, burners, controls, filters, dampers, roof or wall air intakes, ready to install. Units can be designed for any simple or elaborate system required, manual or automatic, to meet your climate and plant conditions. The DeVilbiss Co., Toledo 1, Ohio.

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"Pearl Glo" Synthetic Pearl Pigment can be sprayed or dipped on any sealed surface of plastic, metal, wood, leather, paper, etc. Can also be incorporated into acrylics, polyester, vinyl, etc. Gives a pearl finish at low cost. Sample available. Specify application and choice of vehicle. Argenta Products Co., 74-80 Forrest St., Jersey City, New Jersey.

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Aerostat Static Eliminator permits large, odd-shaped parts to pass through the airstream of the Aerostat and instantly become completely neutralized. Can be effective at distances up to 3-ft. Removes static effectively at molding stations, conveyor lines, etc. The Simco Co., 920 Walnut St., Lansdale, Penna.

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Pearlescent Finishes, air dry or bake, for products of metal, plastic, wood or glass are available from Rona Pearl Corp., E. 21st & 22nd Sts., Bayonne 2, N. J. 12-page Technical Brochure and convenient wall chart on natural and synthetic pearl pigments available upon request.

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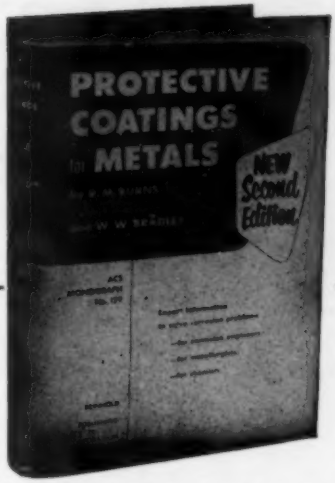

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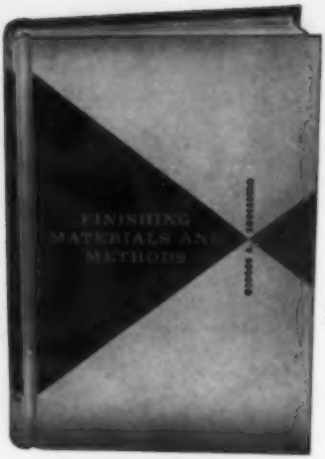

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THE NEW enlarged second edition of George A. Soderberg's excellent fast-selling book, "Finishing Materials and Methods" is now ready. It contains 382 beautifully printed pages 6x9-in., 225 illustrations, and is divided into 36 chapters. In the last 12 pages, all subjects in the book are alphabetically indexed. The book is substantially and attractively bound with the front cover design printed in three colors—light blue, black and red.

The first 24 chapters, all illustrated, take up materials—everything used in finishing—paints, varnishes, enamels, lacquers, synthetics, shellac, stains, fillers, bleaches, multicolor finishes, hammer-effect and wrinkle materials, luminescent paints, wax, polish, flock, tack cloth, tape, abrasive paper, varnish remover, etc.

The remaining chapters, also well illustrated, take up all finishing methods, for example, dipping, spraying, flow coating, roller coating, tumbling, electrostatic and drying. One chapter deals with the important subject of color; another offers "Safe and Recommended Practices in the Finishing Department."

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Electric Infrared Processing equipment is described in two new informative booklets issued by The Fostoria Corp., Fostoria, Ohio. For temperature requirements under 900° F. ask for folder entitled, "Applications Unlimited." For temperature requirements from 900° to 3000° F., ask for the "Breakthrough" folder.

For more data, circle 50 on colored card.

Aerosol Finishes — custom-loaded by Sprayon—never vary in color or performance, as they are tested and proved in Sprayon's quality-control laboratory where paint chemists and paint technicians make sure of this fact. All test data, materials and samples are dated, coded and filed for future reference. Sprayon Products, Inc., 2605 E. 6th St., Cleveland 3, Ohio.

For more data, circle 51 on colored card.

Automatic Viscosity Control for spraying, flow coating and dipping improves quality of painting and finishing by providing continuous uniformity of paint material. Norcross Corp., 247 Newtonville Ave., Newton 58, Massachusetts.

For more data, circle 52 on colored card.

Perfex Satin Fnishes need no rubbing. The "flat" finish has a rubbed appearance and waxed feel. Is quick setting, drying and is water and liquor proof. Available in a full range of sheens. Eliminates costly rubbing operation, yet gives a rubbed-effect finish. Perfection Paint & Color Co., Indianapolis 2, Indiana.

For more data, circle 53 on colored card.

Wood Grain Reproducing Equipment, in 60 different types and models, is available from Schmutz Mfg. Co., 1600 W. Main St., Louisville 3, Ky. Machines for printing metal, masonite or wood cabinets automatically. Visit the plant, see machines under construction and doing actual work on the test floor. Roller coaters also available.

For more data, circle 54 on colored card.

Handy "Tac" Rags are anti-static and non-inflammable. "Tac" rags are a must for all finishers of airplanes, appliances, plastics, furniture, boats, automobiles, etc., who use varnish, lacquers and all synthetic enamels. A request on company letterhead will bring a free sample and literature. Detro Mfg. & Sales Co., Inc., Dept. IF. Culver City, Calif.

For more data, circle 55 on colored card.

Agateen No. 28 Clear Lacquer is a general all-round lacquer for silver, brass and gold. Will not produce feathered edges if engraved. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Road, Long Island City, N. Y.

For more data, circle 56 on colored card.

Dupor No. 4 Respirator has double filters for easy breathing and greatest filtration of paint spray, dust and fumes. Soft rubber face mask gives an air tight fit. Patented Dupor valves bring in clean air and throw off breathed air. Weighs only 4-oz. H. S. Cover Co., P. O. Box 2508, South Bend 14, Indiana.

For more data, circle 57 on colored card.

"Catalan" is the catalyst finish in either gloss or satin finish. Is tough, mar-resistant and waterproof; in clear and colors. Saves on baking cost and on forced air-drying time. Consult our laboratory staff technicians for advice on any finishing problem. J. Landau & Co., Inc., Carlstadt, New Jersey.

For more data, circle 58 on colored card.

Electric Knife Heaters and Burn-in Tools for making quick and skillful repairs to nicked, dented or scratched finishes. The Op-Al Electric & Mfg. Co., 3133 Martindale Ave., Indianapolis 5, Indiana.

For more data, circle 59 on colored card.

Fast Strippers, Lea "Coldstrip" and "Synstrip" are clean working and noncorroding. These strippers break the bond between metal and organic coating; do not dissolve lacquer or enamel. Complete technical information available. The Lea Mfg. Co., 16 Cherry Ave., Waterbury 20, Connecticut.

For more data, circle 60 on colored card.

"Bull Dog Shaker," Model 4, conditions paint to brushing consistency in one to 5-gal. cans, without opening the can. Time required is from two to 30 minutes, depending on paint formulation and length of time paint has been on the shelf. Easy to operate. Grenier & Co., Inc., 13142 Rexford St., Blue Island, Ill.

For more data, circle 61 on colored card.

"Plastovar" Conversion Finishes, by Snyder Brothers Co., P. O. Box 631, Toccoa, Georgia, are a guarantee of the highest quality materials formulated to meet the customers' specific needs. Ask about them.

For more data, circle 62 on colored card.

Gas and Electric infra-red oven design is a specialty of Infra-Red Systems, Inc., 240 Route 23, Riverdale, N. J. Ovens of all types, sizes, and purposes can be engineered for your finishing operation. Free booklet, "The Story of Modular Infra Red Ovens" available upon request.

For more data, circle 63 on colored card.

"Sunstop" is the colorless lacquer that stays colorless. Applicable to metal and wood. Resists fading, yellowing, staining and discoloration. "Scaniac" wood finish resists scratches, discoloration and staining from many chemicals. "Varplez" low-baking varnish for furniture is resistant to alcohol, cigarette burns, nail polish, etc. These are new finishes by The Gilbert Spruance Co., Philadelphia 34, Penna.

For more data, circle 64 on colored card.

Electrostatic Flocking equipment, is just one type of the high-voltage power supplies obtainable from Spellman High Voltage Co., 1930 Adee Ave., New York 67, N. Y. Painting, paint blister removal and pinning are other types of equipment available. Complete information supplied on request.

For more data, circle 65 on colored card.

IC Paladin Primers stick to about anything and provide a tough, flexible bond for lacquers, air-dry or baking enamels, vinyls and practically any other type of finishing coat Dry fast and can be recoated in less than an hour. Available in black, gray, aluminum, zinc chromate and clear. Having adhesion problems? Contact Interchemical Corp., Finishing Divn., 224 McWorter St., Newark 5, N. J.

For more data, circle 66 on colored card.

Ransburg Hand Gun cuts paint costs 35% and painting time 25% over former coating equipment and methods The "wrap-around" feature of the Ransburg No. 2 Process electrostatic hand gun covers all areas from one side only. The No. 2 Process brochure gives numerous examples of modern production painting in both large and small plants.

For more data, circle 67 on colored card.

Cosden Clear Acrylic keeps aluminum bright and stain-free. Gives a hard, clear coating with good adhesion and outdoor durability. Is formulated for dip-coating processes but can be adapted with equal success to other application methods. Cosden Paint Co., Beverly, N. J.

For more data, circle 68 on colored card.

"Wood-Lite" Simulates the bleaching process. Is something new and different from ordinary toners or stains. It produces a clear finish that closely resembles the bleaching process. Wood-Lite is made in various shades and can be used on such woods as walnut, cherry, maple, butternut, etc. Finishing coats of Mar-Proof Crystal Lacquer are suggested for color retention and durability. Samples and particulars available upon request. The Schaefer Varnish Co., Inc., Louisville 10.

For more data, circle 104 on colored card.

Spray Nozzles for washing, rinsing and phosphate coating are illustrated and described in Bulletin 106. Contains complete information on nozzle types and sizes to use for best results. A Spraying Systems representative can help you choose the best nozzle for your particular type of work. Spraying Systems Co., 3240 Randolph St., Bellwood, Ill.

For more data, circle 105 on colored card.

Can Coatings and Linings by O'Brien Corp., South Bend 21, Ind., give an attractive appearance and complete protection throughout its "package life". Liner coatings are non-toxic and never change the taste of the contents of the can. Coatings for outside of the cans have good adhesion and look better longer.

For more data, circle 106 on colored card.

"Uni-Versal Coating" bonds itself to both ferrous and non-ferrous metals. Gives good resistance to salt spray, humidity, abrasion, solvents and tarnish. Can be used as a base coat or top coat. Can be force dried or baked; comes in black and all colors. Working sample and technical brochure available. United Lacquer Mfg. Corp., Linden, N. J.

For more data, circle 107 on colored card.

Butyrate Top-Coat lacquers are non-yellowing and stain resistant. Coatings are easily applied with most conventional equipment; dry dust-free in minutes. For more information on Butyrate lacquers contact Chemicals Division, Eastman Chemical Products, Inc., Kingsport, Tenn., or your lacquer supplier.

For more data, circle 108 on colored card.

If an employe is doing a good job, he deserves to be told so—not when he transfers or retires.

SC Aromatic Solvents offer a wide variation in drying times and solvencies which give them unusual versatility in your formulations Uniformity from initial test to production is assured because they always start with the identical crude. Each run is carefully inspected through numerous quality-control check points **until** delivery to your plant. Organic Solvents Handbook available. The Solvents and Chemicals Group, 2540 W. Flournoy St., Chicago 12, Illinois.

For more data, circle 69 on colored card.

Model 43 Airless Spray Gun is fully described in Bulletin A52-7. Many new features are included, such as removable metal screen cartridge to keep nozzles clear longer; positive trigger lock reduces operator fatigue; diffuser nut makes nozzle tip changing completely safe, etc. Also inquire about the free spray painting school. Binks Mfg. Co., 3120 Carroll Ave., Chicago 12, Illinois.

For more data, circle 70 on colored card.

Portable Electric Oven, for production or laboratory use, Model CR 225, is engineered and sold by Grieve-Hendry Co., 3141 N. Elston Ave., Chicago 22, Ill. Equipped with removable shelves and drip pan, adjustable temperature control to 225° F., and fan-driven forced air circulation. No special wiring required. Other standard models with temperature ranges to 1000° F. are also available.

For more data, circle 71 on colored card.

"Versa Spray" airless paint spray equipment, by the Nordson Corp., Amherst, Ohio, weighs only 38 pounds, will spray up to 30 gallons per hour, and has a paint savings average of 25% or more. "Versa Spray" fits on 5-gal. paint buckets, and be used with 1-qt. paint can and is equipped with Nordson Versa gun. Other hot and cold airless units to meet your exact needs are available.

For more data, circle 72 on colored card.

Buton Resins from Enjay Chemical Co., 15 W. 51st St., New York 19, N. Y., form the tough, durable coating that helps keep aluminum shining brightly. Buton resins provide coatings with excellent adhesion to aluminum at low costs. Have ability to cure at high temperatures as well as with conventional baking. Users of automotive and appliance primers, containers coatings, metal strip coatings, furniture lacquers and other surface coatings should get acquainted with Buton resins.

For more data, circle 73 on colored card.

Back-loading infra-red generators allow changes to be made while the oven is in operation. Reflector removal is now simplified with new slip-on design, only driQuik has it. Stainless steel reflectors are now available for all models, and are recommended where an unusual amount of hard-to-remove foreign matter is deposited on the reflectors and must be removed periodically, where highly corrosive vapors are present or where exposed to the weather. These are three important firsts by driQuik Divn., Dry Clime Lamp Corp., Greensburg, Ind.

For more data, circle 74 on colored card.

Conveyorized Finishing Systems by George Koch Sons, Inc., Evansville 4, Ind., save labor, floor space and improve the quality of your finishes. Koch offers complete industrial conveyor systems, painting and coating systems and equipment, drying ovens and air make-up systems. Let a Koch engineer work with you in planning a complete finishing system for your products and methods of production.

For more data, circle 75 on colore dcard.

"Heated Cup" is the new paint heater that fills the need for a lightweight, compact, portable hot spray unit. Is available in a variety of sizes with screw-type and snap-lock tops. Seven models to choose from, to fit your type of gun, ½-pint to 2-qt. pressure units. Circular showing models and prices is available. Practical Cup Heater, Inc., 1395 Kenmore Blvd., Akron 14, Ohio.

For more data, circle 76 on colored card.

Teflon Finishes by Du Pont are water repellent, inert and stable over a wide temperature range. Teflon finishes are so slick the stickiest glues, paints and foodstuffs can't get a grip. Primarily for spray application certain articles can be dipped or flow coated. After application the water is permitted to evaporate at room temperature or by force drying. Aritcle is then sintered at 750° F. E. I. duPont deNemours & Co., (Inc.), 2500 Nemours Bldg., Wilmington 98, Dela.

For more data, circle 77 on colored card.

BC Chromic Acid (flake) is available from Better Finishes & Coatings, Inc., Broad St. & Hepburn Rd., Clifton, N. J. Every batch is checked, and every can filled with a full weight of extra-high quality Chromic Acid. Prompt delivery from factory and nearby distributor stocks.

For more data, circle 78 on colored card.

Airless Finishing to the most exacting requirements can be produced with the H-Gun and the Spee-Flo HydraAirless unit. H-Gun produces a full feathered spray pattern with total atomization. Documented reports of successful installations in the finishing industry are available. The Spee-Flo Co., 6614 Harrisburg Blvd., Houston 11, Texas.

For more data, circle 79 on colored card.

Gold, Copper and Aluminum are now available in Cres-Lite brilliant, metallic bronze powders. Color card showing the 44 colors now available is free upon request. Special or matched colors can be made. Crescent Bronzie Powder Co., 118 W. Illinois St., Chicago 19, Illinois.

For more data, circle 80 on colored card.

Radcor Electric Temperature Rated infra-red ovens can be supplied with temperature range from 235° F. to 660° F. Catalog BRG-115 shows you how to cut costs, get the exact performance you need and take the mystery out of oven selection. Radcor, Inc., Dept. F, P. O. Box 432, Fostoria, Ohio.

For more data, circle 81 on colored card.

Unifo Stains are finely dispersed pigment stains which can be applied by spray or brush to close-grained woods such as poplar, gum, maple and birch. Do not require wiping. Give appearance of a wiping stain; air-dry in one hour. Can be sprayed on hard-to-reach corners without showing white lines. The Lawrence-McFadden Co., Inc., 7430 State Road, Philadelphia 36, Penn.

For more data, circle 82 on colored card.

Exposure Test. Actual weathering, corrosion and sunlight tests, direct and under glass for quick predetermination of durability and permanency in southern Florida by South Florida Test Service, Inc., 4301 N. W. 7th St., Miami 44, Fla.

For more data, circle 83 on colored card.

"Spex" Multicolor One-Coat Finish by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill., gives a combination of two or more harmonizing colors in one coat with standard spray equipment. For finishing wood, metal, plastic, concrete and all types of composition board. Hides surface irregularities. Color card showing sprayed (not photographed) multicolored combinations available.

For more data, circle 84 on colored card.

Instant Stripper—For metal or wood finishes. A non-flammable, non-toxic stripper which removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air dried), paints, varnishes, etc. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave, Chicago 39, Illinois.
For more data, circle 85 on colored card.

Tack Rags for use prior o painting, to wipe off and hold dust and dirt particles too small to see, but which might leave a blemish on the final coat of paint or finish, are available from Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, O.
For more data, circle 86 on colored card.

"Chem-Rock" is a self-catalyzed coating. It is mar-proof, scratch, soap, detergent and chemical resistant. Can be sprayed, dipped, knifed, roller coated, etc. Applicable to metal, wood or composition materials. Working sample will be sent on request. Chemlite Paint & Lacquer Corp., Lodi, New Jersey.
For more data, circle 87 on colored card.

Strainers for Paints, varnishes, lacquers or enamels. Made with cloth inserts, heavy white paper; all meshes, 6-in. diameter. One-third larger straining area. Sample and price list available. Deborah Sales & Mfg. Co., 32 Vesey St., Newark 5, New Jersey.
For more data, circle 88 on colored card.

"Gripalloy" Primer for 25 Metals is available in black and colors; excellent adhesion . . . and resistance to salt spray and solvents. Cuts pre-treatment costs in half. Tenax Finishing Products Co., 390 Adams St., Newark 14, N. J.
For more data, circle 89 on colored card.

Finishes Consultants, with no supplier affiliations, can give you a 4-day "consulting package." Complete process analysis with detailed equipment specifications can be given. E. A. Zahn, 3502 Hillsboro Court, Louisville 7, Ky.
For more data, circle 90 on colored card.

Paint Overspray can be reprocessed in our plant to conform to its original specification in physical and chemical properties. Paint waste overspray or paint sludge can be used again in regular production at considerable savings. Mixed color sludges can be converted to primers. W. C. Richards Co., 3555 W. 123rd St., Blue Island, Illinois.
For more data, circle 91 on colored card.

Graining Plates of any pattern, size or shape (wood grain, leather, marble, fabric, etc.) for hand or machine graining. American Richwood Products Co., 104 E. Mason St., Milwaukee 2, Wis.
For more data, circle 92 on colored card.

New Savings in Enamel Paint Spraying. A new system for spray painting, using Hi-Sol Enamel reducer, produces savings up to one-third, according to Potter Paint Co., Inc., Cortland, N. Y., and Cambridge City, Ind. The H.S.R. System (Hi-Sol Reducer) lowers the cost per gallon of ready-to-use mix by using more of the special reducer with less air pressure. Puts more paint on the product—less on the booth. The special Hi-Sol Reducer increases coverage per gallon at required mil thickness and achieves desired finish quality, according to the manufacturer.
For more data, circle 93 on colored card.

Plastic Steel Repair Compound, tack rags, Viscosity conversion table disc, synthetic sponges, thickness gauge—these are just a few of the industrial finishing specialties available from Paint Room Supply Co, P. O. Box 7253, Louisville 7, Ky.
For more data, circle 94 on colored card.

"Electro-Cold Stripper" will strip vinyls, alkyds, japans, hammers, primers, wrinkles, enamels and epons in minutes. Is non-flammable, requires no heat or current. Complete data and testing sample free on request. Allied Finishing Specialties Co., 2614 W. Grand Ave., Chicago 12.
For more data, circle 95 on colored card.

Paint Strainers for straining lacquers enamels, paints or varnishes. Made of heavy paper stock with cloth inserts in coarse, medium, fine and extra fine mesh, 6-in. in diameter. Louis M. Gerson Co., Box 175A, Mattapan, Mass.
For more data, circle 96 on colored card.

High Heat-Resistant Inks

F. G. Okie, Inc., Ambler, Pa., colored ink specialist, announces the addition of the colors green and blue to its line of heat-resistant inks. These inks, which resist temperatures up to 2500° F., were previously available in yellow. The additional colors have been introduced to provide further flexibility in the use of the inks.
For more data, circle 103 on colored card.

Multicolor Vinyl Finishes

A new brochure describing Unichrome B-66 multicolor, spray-on vinyl finishes is available from Metal & Thermit Corp., Coatings Sales Office, Carteret, N. J.

Illustrated are deep-patterned multicolor finishes made possible when applied with conventional spray gun application in a one- or two-coat system. In the one-coat system, the field coat and pattern coat are sprayed on at the same time; in the two-coat system, a field coat is applied first, followed immediately by a pattern coat. In this way, according to M&T, an unlimited variety of two-color effects can be obtained.

Unichrome B-66 is designed primarily for application on metals such as aluminum, steel or magnesium. But it also can be used for coating molded fiber glass, transite and similar surfaces. Highly resistant to chemicals and staining, the resulting vinyl finish offers excellent wear and abrasion resistance. It will not crack, chip, or tear.

For more data, circle 98 on colored card.

Vacuum Metallizing Book Free

Vacuum metallizing—a simple, clean, low-cost method of depositing a thin film or layer of metal (or certain non-metallic materials such as silicon, selenium, or magnesium fluoride) on prepared surfaces of metal, glass, paper, or plastics, to yield either a functional or a decorative coating—is used on a wide variety of products.

A new and comprehensive brochure (Bulletin 584) on this process has just been published by F. J. Stokes Corp., 5500 Tabor Road, Philadelphia 20, Pa.

For more data, circle 99 on colored card.

Finishes for Pre-Coating Coiled Sheet Metal

A descriptive folder on coil coatings has been introduced by DeSoto Chemical Coatings, Inc., 1350 S. Kostner Ave., Chicago 23, Illinois.

The 4-page, 2-color folder offers dramatic possibilities for the use of pre-coated coils. Stressed in the folder is DeSoto's newest coil coating, Acropon.

Among the uses for Acropon are the coil coating of: siding, mobile homes, awnings, curtain walls and roofing.

Acropon is a thermosetting acrylic featuring maximum durability. It has excellent forming properties, superior gloss and color retention.

Also described in the folder is Korolith, a complete line of baking finishes for coil coating. Among the applications of Korolith are: rain ware, venetian blinds, lock seam tubing, automotive parts, drapery hardware and appliances.

For more data, circle 100 on colored card.

Thick Plastisol Coatings

A new 4-page brochure on spray-applied Unichrome Super 5300 plastisol that gives thick, corrosion-resistant coatings has been announced by Metal & Thermit Corp., Coatings Sales Office, Carteret, N. J.

The folder describes the improved sprayable vinyl plastisol as one-layer application of solventless films 40-mils or more thick that will not sag even on cold vertical surfaces or during baking. Eliminating seams, pin holes and joints, the tough and flexible material can replace rubber and plastic for such applications as the linings of corrosive chemical pipes and tanks.

For more data, circle 101 on colored card.

Spray Cleaner Selection

"Wyandotte Products for Spray Cleaning" is the title for a 6-page, 2-color folder (F 2829) that covers one-operation cleaning and phosphating, simultaneous cleaning and rust-proofing, heavy-duty cleaning without foaming, aluminum cleaning without etching.

Under "Selecting the Right Spray Cleaner for the Job" is a detailed enumeration of the principal factors to be considered in setting up spray cleaning operations. J. B. Ford Division, Wyandotte Chemicals Corp., Wyandotte, Mich.

For more data, circle 102 on colored card.

Alvey-Ferguson Appoints Illinois Representative

J. W. Harvey Co., 8000 W. 47th St., Lyons, Ill., has been appointed Illinois State representative for Alvey-Ferguson Industrial Finishing Equipment.

The Alvey-Ferguson Co., Cincinnati 9, Ohio, manufactures industrial washers, ovens, phosphatizing machines, spray booths and conveying equipment.

Michigan Oven Appointments

Charles Percival, Jr., has been appointed by Michigan Oven Co., as its Eastern Regional Sales Manager, responsible for sales on the Eastern Seaboard and Atlanta, Pittsburgh and Buffalo. He has been associated with Michigan Oven Co. for 10 years.

Halloran Mason Locker

Joseph M. Halloran, Jr., has been appointed District Manager of the New England Sales area. He specializes in the sales engineering of heat processing equipment to industry.

A. N. Mason joins the company as District Manager of the Metropolitan New York City area and northern New Jersey. He is a graduate of Drexel Institute and a specialist in the application of ovens and heat processing equipment for industry.

Howard W. Locker, Jr., has joined the firm as Chief Engineer. He will be based in Detroit.

Nordson Spray Training School For First Half of 1962

Nordson Corp., Amherst, Ohio, manufacturer of airless spray equipment, conducts 4-day classes in the use and maintenance of airless spray equipment. The school, under the direction of Nordson's manager of technical services, Frank Ziroe, includes both theory and practice.

Frank Ziroe, at Nordson, lecturing a class.

Lectures are supplemented by demonstrations and work sessions. Tuition is free. Anyone generally interested in the airless spray technique may enroll. For details write to Ed Bullen at Nordson.

Dates for classes during the first half of 1962 are:

January	9 to 12
February	13 to 16
March	13 to 16
April	10 to 13
May	8 to 11
June	12 to 15

Normally, no classes are conducted in July, August and December.

FIGHT TB WITH CHRISTMAS SEALS

ANSWER YOUR CHRISTMAS SEAL LETTER TODAY

P. J. Guinther, Jr.; Allied Research

Allied Research Products, Inc., Baltimore, Md., manufacturer of chemicals and equipment for the metal finishing industry, announces the appointment of Paul J. Guinther, Jr., as sales engineer for the Pittsburgh area. His office is located at 101 Investment Bldg., 234 Fourth Ave., Pittsburgh 32, Pa.

C. N. Seidlitz, Jr., Now President of Seidlitz Pt. & Varn. Co.

C. N. Seidlitz, Jr. has been elected president of Seidlitz Paint & Varnish Co. by the Seidlitz board of directors, replacing his brother, G. R. Seidlitz, who held the office during the past eight years and who is also president of Consolidated Coatings & Chemicals, Inc., of which the Seidlitz company is a division.

Mr. C. N. Seidlitz has been a member of the Seidlitz firm for 22 years, beginning as a plant trainee. He next became a factory representative and then went into sales management. In 1955, he was transferred to Houston to establish a manufacturing subsidiary, Seidlitz Paints of Texas, Inc., and serve as its first president. He returned to the Kansas City operation in 1960 as its executive vice president.

M. W. Tretout; Oakite

Marcel W. Tretout has been appointed technical services representative in Union County, N. J., by Oakite Products, Inc., manufacturer of industrial cleaning and surface treating compounds.

Mr. Tretout was formerly with a major automobile manufacturer. He recently completed an intensive 8-week training program at Oakite's New York laboratories and in the field.

To Diversey Post in Brazil

P. George Simon has been named technical manager of Diversey-Wilmington, Sao Paulo, Brazil, a subsidiary of The Diversey Corp., Chicago.

He succeeds W. Bibikoff, who was recently named general manager of the Brazilian subsidiary. Before joining Diversey-Wilmington, Mr. Simon was a technical consultant at the company's Chicago headquarters.

Cosden Adds to Sales Staff

Edmund F. Chew, Joseph F. Golden and James J. Polek have joined the sales staff of Cosden Paint Co., Beverly, N. J.

Ed Chew was formerly in industrial sales with a paint company in Cleveland. Joe Golden has been selling production finishes in the industrial field for over ten years. Jim Polek has a background in coating applications, having been with two other concerns.

STRAINERS

For Paints, Varnishes, Lacquers or Enamels

Made with cloth inserts — heavy white paper — all meshes — 6-inches in diameter — single leg. One-third larger straining area.

Write for sample and price list!

DEBORAH SALES & MFG. CO.
32 Vesey St., Newark 5, N. J., Phone MA 2-8166

For more data, circle 240 on colored card.

INDUSTRIAL FINISHING SPECIALTIES

PLASTIC STEEL REPAIR COMPOUND, Drill it, tap it, file it, for all metal repairs. Catalyzed-Non-Shrinking. Carton —Full Pound.....$3.95 Each

DOUBLE DUTY *WHITE* TACK-RAGS, Non-Staining, Long Lasting, Full Size. Fresh Stock.....$24.40 Gross (Min.)

VISCOSITY CONVERSION TABLE DISC, Converts All 40 Viscometers (Simplified).....$2.50 Each

COMPRESSED SYNTHETIC SPONGES, Solvent Resistant—Full size 3½"x6"x⅝". 50 Sponges for.....$15.00

TINSLEY THICKNESS GAUGE, Range 0.0002 to 0.015 inches - with case.....$65.00 Each

(Plus Postage)

PAINT ROOM SUPPLY COMPANY, P. O. Box 7253, Louisville 7, Kentucky

For more data, circle 214 on colored card.

INDUSTRIAL SALES REPRESENTATIVE

For the industrial division of one of the largest Florida paint manufacturers. Only one having past experience in industrial finishes or other related fields will be acceptable. This position offers an opportunity for an individual who is willing to work hard to attain financial security with a well organized, modern firm. Guaranteed weekly income. Write to CROWN PAINT INC., 985 W. 20th St., Hialeah, Florida.

FOREMAN WANTED

Experienced in supervising finishing department for store fixtures and architectural woodwork. Must be capable in mixing and matching colors and finishes. Long established plant located in Midwest. Salary open; good fringe benefits. Permanent position. Submit complete resume. Replies held in strict confidence. Address IF-883, care Industrial Finishing.

VACUUM PLATING MANAGER WANTED

For large nationally-known east coast jewelry manufacturer. Jewelry background preferred. Must be thoroughly familiar with all phases of vacuum plating process. Excellent permanent opening for man capable of assuming the top position in a large vacuum plating division. Excellent position. Established company. Our employees know of this ad. Address IF-880, care Industrial Finishing.

FINISHING SUPERINTENDENT WANTED.

Under 45, to manage Ultra-Modern conveyorized metal finishing department. Top salary. Direct written inquiries only, and resume to Mr. Dan. Hillenbrand, HILLENBRAND INDUSTRIES Batesville, Indiana

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Adds set in 8-pt. extra bold face type cost $2.00 per line, per insertion.

There may be certain firms or individuals to whom you do not want your reply sent. Simply address your communication to the box number in the ad and attach a separate list of names. Place both in a separate envelope addressed to Industrial Finishing Magazine, 1142 N. Meridian St., Indianapolis 4, Ind. If the advertiser is on the list you submit we will then destroy your letter. Names of advertisers using box numbers not revealed.

CHEMIST, INDUSTRIAL FINISHES.

Qualified specialist, with organic chemistry background, to supervise quality control of sheet metal preparation and finishing in appliance-type painting and porcelain operations. Experience and/or knowledge in plastics also necessary to handle responsibility for developmental work in polyurethane foam insulation and other plastic materials. Please forward detailed resume and salary requirements to TYLER REFRIGERATION CORP., Niles, Michigan.

PRODUCTION MANAGER WANTED.

Midwest upholstered manufacturer desires capable man to take over entire production responsibilities. Must be experienced in upholstered manufacturing and able to handle people. This is an extremely good opportunity for the right man. Reply in confidence to IF-881, care Industrial Finishing.

FINISHING SUPERVISOR WANTED.

Excellent opportunity for a man experienced in overall finishing of wood cabinets. Large cabinet manufacturer making TV, phonograph and speaker cabinets, needs an experienced supervisor to train for a responsible position. Plant located in South. Good pay, liberal benefits, including profit sharing. Apply, giving salary requirements, to IF-882, care Industrial Finishing.

CONSULTANT WANTED

With formulating experience, epon and vinyl collapsible tube coatings. Lucrative. Address confidential, IF-884, care Industrial Finishing.

CHIEF CHEMIST-TECHNICAL DIRECTOR

Wanted, who wishes to earn top salary and benefits, for Chicago-based specialty paint manufacturer. Must have strong paint formulating background and management and leadership abilities. Outstanding opportunity to progress and share in growth of progressively managed company. Submit complete resume and photo. Address IF-885, care Industrial Finishing.

SALESMAN WANTED.

If you are a good finisher with experience in the application of stains, toners, wood fillers and top finishes, and have worked with companies that manufacture recognized quality merchandise; if you want to prove your ability as a salesman, investigate this unusual opportunity. Address IF-888, care Industrial Finishing.

SALES ENGINEER WANTED.

Metal cleaning. Nationally-known metal cleaning equipment and chemical manufacturer requires experienced sales engineer. Salary and expenses plus bonus. Address IF-893, care Industrial Finishing.

— STYMIED —

By the best boss in the land? Is it time for you to step out of his shadow and manage your own finishing department? Have you got what it takes, good technical knowledge, a sound background of practical experience and that more ethereal quality of direction that will extract the last bit of possible efficiency and quality from your department? We want a highly qualified manager to join our management team of hard-hitting young men in producing the finest line of store fixtures in the country. Ours is a rapidly expanding business that will afford you ample opportunity to flex your capabilities. For complete information and application blank, write LOZIER CORPORATION, 4402 Florence Blvd., Omaha 10, Nebraska.

SALESMAN WANTED.

Experienced Industrial Finishes Salesman needed to cover our expanding business. Territory, Mississippi and part of Tennessee and Alabama. Our firm is a leader in product finishes and will give you full support. Salary, expenses and liberal bonus program. Write Industrial Sales Manager, care HANNA PAINT CO., INC., 1018 5th Ave., South, Birmingham, Alabama.

ATTENTION: ALL FINISH SALESMEN.

If your present line does not include varnish, you are missing a bet. PERFEX VARNISHES are unexcelled (yes, unequalled) and are well known by volume finish users. Look at our display advertisement on page 83 of this magazine. If you are interested in the possibility of taking on PERFEX VARNISH in addition to your present line, write us. All replies will be kept in strict confidence. PERFECTION PAINT & COLOR CO.

PAINT SALESMAN WANTED.

Old established industrial finishes company located in Newark, N. J., wants an experienced salesman with a following in this field. We are ready to turn over a sizable number of house accounts to the right man. Salary and commission. Give complete background in first letter. All replies will be kept in strict confidence. Address IF-891, care Industrial Finishing.

INDUSTRIAL FINISHES SALESMEN WANTED.

Our company is rapidly expanding and we have openings for two experienced salesmen in these territories:
ST. LOUIS, MISSOURI & SOUTHERN ILLINOIS; MEMPHIS, TENNESSEE & NORTHERN MISSISSIPPI

Salary and commission basis. Our modern laboratory affords our salesmen the technical help and service needed. Our new, modern headquarter manufacturing plant in Columbus, Ohio, together with our other strategically located manufacturing plants, provide our customers with qualified and readily available industrial finishes. Write: Industrial Sales Manager, THE HANNA PAINT MFG. CO., P. O. Box 147, Columbus 16, Ohio. All replies confidential.

SALESMEN—INDUSTRIAL FINISHES.

Long established, financially stable manufacturer of a complete range of industrial finishes and lacquers is embarking on a new growth program and has openings for experienced salesmen with a following in this field in New England, New York State and Metropolitan New York City. Guaranteed income against liberal commissions. Give complete background in first letter. All replies held in strictest confidence. Address IF-886, care Industrial Finishing.

INDUSTRIAL FINISHES SALESMEN

Experienced industrial finishes salesmen needed to cover our expanding business. Territories are growing in all the states within a 350-mile radius of Cleveland, Ohio. Our company is a leader in products finishes, and we can prove the superior quality of our coatings. If you are ambitious, but dissatisfied with your present company's limiting policies, investigate our excellent line and our liberal commission plan. Write: Sales Promotion Department, Ferbert-Schorndorfer Company, 12815 Elmwood Avenue, Cleveland 11, Ohio. All replies confidential.

SALESMEN WANTED.

Progressive manufacturer and national distributor of FLOW COATERS and FLOW COATING EQUIPMENT nationally advertised has openings for outstanding, progressive and successful salesmen. This equipment has been most successfully used in the following industries: Woodwork and Furniture Metal Paper and Cardboard Leather and Leather Finishing. Please submit resume stating background, experience. Replies are held strictly confidential. Address IF-889 Care Industrial Finishing.

SALESMAN WANTED.

Medium sized midwestern industrial finishes manufacturer has opening for salesman in southern Cook county and central Illinois area. We have a complete line of finishes for both metal and wood. Our people know of this ad. Address IF-887, care Industrial Finishing.

SALES-SERVICE MEN

Wanted by a company making a large volume of quality finishing materials being sold to furniture factories in the Southern furniture section. We need two men thoroughly familiar with finishing operations. If you have had no outside experience but have good finishing experience we can offer you a good position and training for service work—which may later lead to selling. If you have experience in Sales-Service work and a good background the compensation will, of course, be greater. When answering this ad please give full details as to age, experience, family connection, your type of employment for past five years, and average earnings for the last three years, also if you are willing to live in Virginia or North Carolina. Do not answer unless you feel capable of earning a good salary either now or in the near future. Your letter will be kept confidential, and our own people know of this ad. Address IF-878, care Industrial Finishing, Indianapolis 4, Ind.

SALESMEN WANTED.

Progressive manufacturer of industrial coatings has openings for outstanding salesmen in New York area, New England, South Eastern states, Ohio, Pennsylvania and many other lucrative areas. In addition to up to date wood and metal finishes our line extends into vinyl printing inks and adhesives for fabric and plastic laminating. Extremely close cooperation between each salesman, technical director and top management. Submit resume of background and experience. Replies held in strict confidence. Address IF-850, care Industrial Finishing.

DISTRIBUTORS WANTED.

National concern wants distributors for complete line of cleaning and metal finishing compounds. Reply should include area covered, experience, etc. Address IF-892, Industrial Finishing.

INDUSTRIAL PAINT CHEMIST WANTED.

Industrial Paint Chemist with B.S. or M.S. degree and two to five years experience in surface coating technology. Work involves formulating for newer types of coatings in progressive and growing company. Excellent opportunity for advancement. All replies held in strict confidence. Send resume on background and experience to

Lilly Varnish Company of Mass.
29 Maple Street
Gardner, Mass.

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Write or send resume to:
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CHICAGO, ILLINOIS

FOR SALE.

Zyglo unit, model ZA28. Perfect. DAVENPORT, Box 18152, Louisville 18, Ky.

WANTED.

Dirty solvents and thinners. Please send samples. Have clean reclaimed solvents for sale. Modern efficient solvent recovery service. Will process for customers, material at fraction of the original cost. ACME RECLAIMING, Inc., 1915 20th Ave., Rockford, Illinois.

DIRTY THINNERS AND SOLVENTS WANTED.

Send samples and letters giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

FOR SALE.

55-gallons of gold, 110-gallons of yellow and 162-gallons of gray high-grade baking enamel. All material formulated for use in the Ransburg #2 Process. For samples, contact Wm. N. Anderson, care BISSELL, INC., Grand Rapids 1, Mich.

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15x15x2½-in. deep. Rigid CRS wire. Price $125 per C. Send for free sample. DAVENPORT, Box 18152, Louisville 18, Kentucky.

FOR SALE.

One Detrex Kem-O-Dryer, stainless. Model PD-750, size 200-1-3 (20x24x54-in. deep), equipped for gas or steam. Used two months, excellent condition. Cost new, $1,765. Will sell for $450. Address IF-890, care Industrial Finishing.

BURDETTE GAS OVEN FOR SALE.

35' long x 7'8" wide x 6'10" high, with 7'6" air seal each end. 1,000,000-BTU. Max. temp. 375°, min. 250°. New 1952; in excellent condition. 1025 Firestone Blvd., Memphis 7, Tennessee.

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